



*George Mason University
Audiovisual Digitization Project
Response to RFP
GMU-1564-19*

April 18, 2019

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The MediaPreserve:
a Division of Preservation Technologies, LP

111 Thomson Park Drive
Cranberry Township, PA 16066

For questions, call:

Robert Strauss

Vice President, Strategic Planning

Business: 800 416 2655

Cell: 724 713 7294

strauss@ptlp.com

This response was prepared specifically for George
Mason University. All submitted information is intended
solely for the recipient.

.....

COPY

This proposal includes data that shall not be disclosed outside of George Mason University and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. If, however, a contract is awarded to The MediaPreserve as a result of – or in connection with – the submission of this data, the institution shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the institution’s right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction is footnoted with the following wording: “Use or disclosure of data contained on this sheet is subject to the restriction on the title page of the proposal.”



*George Mason University
Audiovisual Digitization Project
Response to Proposal
GMU-1564-19*

April 18, 2019

April 16, 2019

Erin Rauch
Assistant Director
Purchasing Department
George Mason University
4400 University Drive, Mailstop 3C5
Fairfax, VA 22030
703-993-2580
erauch@gmu.edu

Dear Erin,

Thank you for your interest in The MediaPreserve as a professional service provider for the reformatting of archival audio, video, and film materials from George Mason University. George Mason and The MediaPreserve continue to enjoy a productive partnership in providing preservation and access to legacy media collections. I am confident that we can provide you with the high quality, cost efficient services required for your digitization project.

We remain grateful for the previous opportunities to provide George Mason with state-of-the-art digitization services tailored to your specific needs. We are also pleased to respond to your Request for Proposals, #GMU-1564-19 "Audiovisual Reproduction Services." The MediaPreserve is prepared to meet all the specifications and requirements of this project, with the utmost care for your collections and in a manner that is efficient and at a scale that meets your needs.

We understand that this effort entails the digitization of more than 9,500 recordings on a variety of at-risk media, including several hundred grooved discs, two hundred microcassettes, and more than 5,000 audiocassettes. We are well equipped to transfer the many video formats described as well, such as the almost 1,000 ¾" U-matic tapes and the more than 1,100 VHS recordings, along with open reel video, DVCAM, MII, MiniDV, Video8/Hi8, Betacam, and Betamax. In addition, our film department will provide expert and safe transfers of the 8mm and 16mm films in the collection, including transfer of any optical or magnetic sound.

On the pages that follow, you will find The MediaPreserve's proposal and budget estimate for the collections described in the RFP, as well as detailed information about our transfer facilities, workflows, equipment, metadata standards, and other resources. The expertise and experiences of key staff members are documented in the included professional biographies section, and our Company History section provides the background of The MediaPreserve and Preservation Technologies.

We believe we have responded clearly and completely to each requirement in the RFP, but I am always available to answer any further questions or concerns. Thank you for your continued trust in The MediaPreserve. I look forward to hearing from you.

Sincerely,



Robert Strauss
Vice President of Strategic Initiatives

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I. Executive Summary

We are grateful for the opportunity to bid on the digitization of audio, video and film assets held by George Mason University Libraries. The Special Collection Research Center is an invaluable resource in documenting the development of Virginia, transportation, performing arts, politics and the past of such a historic institution. The large oral history collection that are also held at the Special Collections Research Center will prove to be an invaluable resource for future students, scholars, and the community once digitized. The MediaPreserve is uniquely equipped to handle George Mason's project as outlined in this RFP. We have worked closely with the university libraries on numerous projects since 2011 that included a variety of audio and video formats. Because of this, we are familiar with George Mason's project specifications and are confident in our ability to complete this project in a timely manner.

The scope of the project will fit easily into our current workflow, and we will have no problem meeting the digitization goals outlined by the university. As stated in the RFP, this project includes the digitization of over 9,000 audio and video assets, and around 350 film assets. The MediaPreserve is capable of completing a project of this size and scope, and are able to accommodate any schedule that is most convenient for the university.

We understand that George Mason is developing a large scale digitization project, and we admire the university's dedication to preservation. We have invested heavily in our equipment and employ a staff of highly qualified engineers, archivists, librarians, and preservation experts, many with a history in the broadcast industry, to provide institutions like you with archival quality transfers for the preservation of unique and relevant cultural artifacts.

The MediaPreserve was founded in 2006 as a response to the expressed need of preserving audiovisual formats. It offers studios designed for both the handling and transfer of fragile materials and high-capacity multiple ingest of robust cassette-based formats. The detailed biographies of our Key Personnel begin on page 63. Our transfer studios are located in a secure, climate-controlled facility in Cranberry Township, PA. All work is completed in our facility and access to materials is limited to qualified personnel. We have a dedicated shipping and logistics department that is familiar with the unique requirements of handling media formats, and all of George Mason's materials will be covered by \$10 million of fine arts insurance from the moment they leave until the moment they are returned.

We propose to:

- Clean materials prior to transfer and address "sticky shed" syndrome.
- Provide secure on-site storage of materials, with appropriate climate control.
- Transfer media to appropriate container if original holders are damaged/missing.
- Provide requested master, mezzanine, and streaming (access) copies.
- Digitize of all AV formats at our facility in Cranberry Township.
- Generate a checksum for each digital file and perform quality control on completed audio visual files.
- Adhere to IASA, FADGI, and/or NARA standards for digitization of AV materials.

II. The MediaPreserve Project Proposal & Budget Estimate

A. Proposal Signature Page



Purchasing Department
4400 University Drive, Mailstop 3C5
Fairfax, VA 22030
Voice: 703.993.2580 | Fax: 703.993.2589
<http://fiscal.gmu.edu/purchasing/>



REQUEST FOR PROPOSALS GMU-1564-19

ISSUE DATE:

March 27, 2019

TITLE:

Audio Visual Reproduction Services

PRIMARY PROCUREMENT OFFICER:

Erin Rauch, Assistant Director, erauch@gmu.edu

SECONDARY PROCUREMENT OFFICER:

Chris Mullins, Senior Buyer, cmullin4@gmu.edu

QUESTIONS/INQUIRIES: E-mail all inquiries to both Procurement Officers listed above, no later than 4:00 PM EST on April 4, 2019. All questions must be submitted in writing. Responses to questions will be posted on the [Mason Purchasing Website](#) by 5:00 PM EST on April 8, 2019. Note: Questions must be submitted in WORD format. Also see section III. COMMUNICATION, herein.

PROPOSAL DUE DATE AND TIME: April 18, 2019 @ 2:00 PM EST. Hand deliver or mail proposals directly to the address above. Electronic submissions will not be accepted. A public opening will not be held. Late proposals will not be accepted.

Note: A return envelope is not being provided. It is the responsibility of the Offeror to ensure the proposal is submitted in a sealed envelope, box, container, etc. that clearly identifies the contents as a proposal submission in response to this Request for Proposal. See Section XII Paragraph C herein. If delivering proposals by hand, deliver to the Purchasing Department located in Suite 4200 of Alan and Sally Merten Hall (Merten Hall), Fairfax Campus. [Campus Map](#). Office hours are 8:30AM to 5:00PM.

In Compliance With This Request For Proposal And To All The Conditions Imposed Therein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Goods/Services In Accordance With The Attached Signed Proposal Or As Mutually Agreed Upon By Subsequent Negotiations.

Name and Address of Firm:

Legal Name: Preservation Technologies, L.P.

DBA: The MediaPreserve

Address: 111 Thomson Park Drive

Cranberry Township, PA 16066

FEL/FIN No. 23-2921162

Fax No. 724-779-9808

Email: strauss@ptlp.com

Date: April 17, 2019

By: [Signature]
Signature

Name: Robert J. Strauss

Title: Vice President, Strategic Initiatives

Telephone No. 724-779-2111

SWaM Certified: Yes: _____ No: x (See Section VII. SWaM CERTIFICATION for complete details).

SWaM Certification Number: _____

This public body does not discriminate against faith-based organizations in accordance with the *Governing Rules*, § 36 or against a Bidder/Offeror because of race, religion, color, sex, national origin, age, disability, or any other prohibited by state law relating to discrimination in employment.

B. Responses to RFP #GMU-1564-19

- I. **PURPOSE:** The purpose of this Request for Proposal (RFP) is to solicit sealed proposals to establish a contract through competitive negotiations with one or more qualified vendors to provide audio visual reproduction services for the University Libraries at George Mason University (herein after referred to as "Mason," or "University"). George Mason University is an educational institution and agency of the Commonwealth of Virginia.

Mason reserved the right to make one award or multiple awards.

The MediaPreserve understands the purpose of this RFP and can provide the services described.

- II. **PURCHASING MANUAL/GOVERNING RULES:** This solicitation and any resulting contract shall be subject to the provisions of the Commonwealth of Virginia Purchasing Manual for Institutions of Higher Education and their Vendor's, and any revisions thereto, and the Governing Rules, which are hereby incorporated into this contract in their entirety. A copy of both documents is available for review at: <https://vascupp.org>.

The MediaPreserve understands the awarded contract will be subject to the provisions of the documents described above.

- III. **COMMUNICATION:** Communications regarding the Request For Proposals shall be formal from the date of issuance until a contract has been awarded. Unless otherwise instructed offerors are to communicate with only the Procurement Officers listed on the cover page. Offerors are not to communicate with any other employees of Mason.

The MediaPreserve understands that all communication regarding this Request For Proposal shall be with the Procurement Officers listed on the cover page.

- IV. **FINAL CONTRACT:** ATTACHMENT B to this solicitation is Mason's standard two-party contract. It is the intent of this solicitation to base the final contractual documents off of Mason's standard two-party contract and Mason's General Terms and Conditions. Any exceptions to our standard contract and General Terms and Conditions should be denoted in your RFP response. Other documents may be incorporated into the final contract, either by way of attachment or by reference, but in all cases this contract document and Mason's General Terms and Conditions shall jointly take precedence over all other documents and will govern the terms and conditions of the contract.

If awarded the contract, The MediaPreserve agrees to the General Terms and Conditions and contract provided by George Mason University, based on the standard contract that is provided in Attachment B.

- V. **ADDITIONAL USERS:** It is the intent of this solicitation and resulting contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access any resulting contract if authorized by the contractor.

Participation in this cooperative procurement is strictly voluntary. If authorized by the Contractor(s), the resultant contract(s) will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor(s) and shall fully and independently administer its use of the contract(s) to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the contractor.

The University may require the Contractor provide semi-annual usage reports for all entities accessing the

contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the contract. It is understood and agreed that the University is not responsible for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this contract(s) does not preclude any participating entity from using other contracts or competitive processes as needed.

- VI. **eVA BUSINESS-TO-GOVERNMENT VENDOR REGISTRATION:** The eVA Internet electronic procurement solution, website portal www.eVA.virginia.gov, streamlines and automates government purchasing activities in the Commonwealth. The eVA portal is the gateway for vendors to conduct business with state agencies and public bodies. All vendors desiring to provide goods and/or services to the Commonwealth shall participate in the eVA Internet eProcurement solution by completing the free eVA Vendor Registration. All bidders or offerors agree to self-register in eVA and pay the Vendor Transaction Fees prior to being awarded a contract. Registration instructions and transaction fees may be viewed at: <https://eva.virginia.gov/>
- VII. **SWaM CERTIFICATION:** Vendor agrees to fully support the Commonwealth of Virginia and Mason's efforts related to SWaM goals. Upon contract execution, eligible vendors (as determined by Mason and the Virginia Department of Small Business and Supplier Diversity) shall submit all required documents necessary to achieve SWaM certification to the Department of Small Business and Supplier Diversity within 90 days. Vendors currently SWaM certified agree to maintain their certification for the duration of the contract and shall submit all required renewal documentation at least 30 days prior to existing SWaM expiration. <https://www.sbsd.virginia.gov/>
- VIII. **PERIOD OF PERFORMANCE:** One (1) year from date of award with four (4) successive one-year renewal options (or as negotiated).

The MediaPreserve understands that the period of performance is one year from the date of the award with four successive one-year renewal options.

- IX. **BACKGROUND:** The Special Collections Research Center (SCRC) holds over 9,000 individual film, audio tapes, video tapes, and other AV media that are currently in need of migration to digital formats for preservation of the information contained in those items. SCRC is tasked to "support the research and teaching missions of the University by collecting, preserving, and providing access to archival...collections." Our audio-visual holdings document the development of Northern Virginia, transportation, performing arts (local and national), politics, and the history of George Mason University, among others. When SCRC acquires a collection, there is a high likelihood that it will contain media. SCRC also hosts a robust oral history program; through this work, the Center has received (and continues to receive) non-digital interviews from external donors.

The SCRC has migrated parts of the AV collection already, through grant or donor funding. This has been intermittent and on an as-needed basis rather than a programmatic model and has only addressed small parts of the collection at any one time. Because of the fragility of magnetic and early digital media, it is imperative that SCRC begin to more aggressively address the preservation needs of the AV materials in our collections.

By migrating these at-risk primary source resources to a digital format, the SCRC will be able to provide access to Mason students, faculty, the Fairfax community, researchers from around the world, and will be able to better preserve these resources for future use by researchers.

The MediaPreserve has experience in digitizing many collections that span the topics described in the background section above. We have working with many performing arts groups as well as oral history collections. More information about the collections and organizations we have worked with can be found in the Reference section that starts on page 28.

The MediaPreserve is able to work with George Mason University to create a schedule for the digitization of the audio, video and film material held in the collections described. We can handle batches of varying sizes and will work with the university to reach an agreeable batch size.

- X. **STATEMENT OF NEEDS:** The contractor shall furnish all labor and resources to provide audio visual reproduction services to migrate appropriate AV items for preservation and access purposes. The contractor must be able to meet/provide the following requirements:

- Contractor shall clean materials prior to transfer, will address “sticky shed” syndrome.

Upon receipt and before ingest, each asset is individually inspected for any defects. Tapes exhibiting sticky shed syndrome are baked in a VWR 1680-3 scientific oven accurate to .01 degrees. Tapes exhibiting mold are baked in a separate isolated Thermo Scientific Heratherm OGH180 oven.

Tape cleaning is accomplished by using professionally modified machines, with tape lubrication capability if required. Tapes that have mold are cleaned in the mold remediation room.

All splices are checked for integrity or replaced. Leader is applied to the head and tail of each tape, if needed.

Before transferring film assets, an engineer carefully hand-winds through each film at the inspection bench. The engineer attaches leader, reinforces splices, and repairs existing damage as needed for optimal playback. After repairs, the film is cleaned using a Lipsner-Smith CF2800 ultrasonic cleaner, which employs environment-and-human-safe 3M Novec HFE 7200 as its cleaning chemistry.

More details of these processes can be found in the AUDIO TECHNICAL INFRASTRUCTURE Section on page 36; VIDEO TECHNICAL INFRASTRUCTURE on page 44 and FILM TECHNICAL INFRASTRUCTURE on page 53.

- Contractor shall provide secure on-site storage of materials, with appropriate climate control.

Each room is equipped with an individual climate control system allowing temperatures to be raised or lowered as required by each project. For example, rooms can be cooled to a temperature low enough to safely play back tapes with soft binder syndrome.

Each room is monitored by individual data loggers.

Storage and Security: Materials are stored in secure, climate-controlled rooms. Each job is stored on racks dedicated solely to each client so related items remain grouped together physically.

The facility is equipped with multiple interior and exterior cameras which are closely monitored 24 hours a day by a private security company. Additionally, management personnel have remote access to images from the security cameras.

Every room at The MediaPreserve functions on an entrance keypad alarm system to ensure asset security. Access to studios and storage areas is limited to authorized personnel.

The MediaPreserve insures client’s assets with ten million dollars’ worth of fine arts coverage from the moment they leave the client’s facility until the time they are returned. (See page 32 for more).

- Contractor shall transfer media to appropriate container if original holders are damaged/missing.

The MediaPreserve understands that rehousal is to be done on an as needed basis, if cans are damaged or missing. We can provide rehousing for all types of media assets as requested/needed.

- Contractor shall provide master, mezzanine, and streaming (access) copies.

The MediaPreserve has provided these files to George Mason in the past and will be able to provide these same files for the project described in this RFP.

For Film and Video we will provide the following files at the specifications indicated:

Preservation master – 10-bit YUV uncompressed .mov, 720 x 486, 16-bit PCM 48KHz
Mezzanine copy – DV-25, 720 x 480, 12-bit PCM 32 KHz
Streaming copy - H264/MP4, 640x480 , 8-bit, 1,100 kbps, AAC; stereo 128 kbps 48 KHz

Audio files to be provided:

Preservation master – 24-bit/96KHz Broadcast WAV
Mezzanine copy – 16-bit/44KHz Broadcast WAV
Streaming copy – MP3 , 44.1 kHz, 256 kbps

- Digitization of all AV formats should be done at contractor's facility (magnetic media, grooved media, and film media).

The MediaPreserve performs all work in our facility in Cranberry Township, Pennsylvania. No work is completed by subcontractors.

- Contractor shall generate a checksum for each digital file and perform quality control on completed audio visual files.

It is standard practice for The MediaPreserve to supply MD5 Checksums for all files created. We will continue to do this for the Project described in the RFP. Please see the Quality Control section starting on page 44 for a description of our QC processes. MD5 checksums are generated whenever a file is moved to a new location.

- Contractor must adhere to IASA, FADGI, and/or NARA standards for digitization of AV materials.

The MediaPreserve will meet all of the needs outlined in the section above. All media will be cleaned prior to digitization and baked if needed. The MediaPreserve was designed to meet all archival standards for audiovisual material storage. All doors are outfitted with locks, and are only accessible to relevant employees, while security cameras monitor all hallways. All rooms are monitored with smoke alarms and a fire suppression sprinkler system. While in storage, all materials are kept in temperature-controlled rooms outfitted with PEM2 data loggers to ensure that both temperature and humidity are recorded and controlled.

The MediaPreserve will transfer any media to appropriate containers if the original holders are damaged or missing. We will provide all files that are requested and generate MD5 checksums for all digital files created. Following capture, all files are run through a quality control software before being spot checked by a quality control engineer. All files are guaranteed to be free from error and will be corrected at no additional cost if an error is found.

All transfers will be completed at our facility in Cranberry Township, PA. We adhere to IASA, FADGI and NARA standards when digitizing all AV materials.

XI. COST OF SERVICES: See Section XII.B.5 below.

Please see our Pricing Proposal on page 18.

XII. PROPOSAL PREPARATION AND SUBMISSION REQUIREMENTS:

A. GENERAL REQUIREMENTS:

1. RFP Response. In order to be considered, Offerors must submit a complete response to Mason's Purchasing Office prior to the due date and time stated in this RFP. Offerors are required to submit **one (1)** signed original hardcopy (paper) of the entire proposal including all attachments and proprietary information and **four (4)** extra hard copies (paper) including all attachments and proprietary information. In addition, the Offeror shall submit one (1) complete signed copy of the original proposal including all attachments and proprietary information, on CD, thumb drive or other electronic device. If proposal contains proprietary information, then submit two (2) CD's, thumb drive or other electronic device; one (1) with proprietary information included and one (1) with proprietary information removed (see also Item 2e below for further details). The Offeror shall make no other distribution of the proposals.
 - a) At the conclusion of the RFP process proposals with proprietary information removed (redacted versions) shall be provided to requestors in accordance with Virginia's Freedom of Information Act. Offerors will not be notified of the release of this information.
2. Proposal Presentation:
 - a) Proposals shall be signed by an authorized representative of the Offeror. All information requested must be submitted. Failure to submit all information requested may result in your proposal being scored low.
 - b) Proposals should be prepared simply and economically, providing a straightforward, concise description of capabilities to satisfy the requirement of the RFP. Emphasis should be on completeness and clarity of content.
 - c) Each hardcopy of the proposal should be bound in a single volume where practical. The original hard copy proposal must be clearly marked on the outside of the proposal. All documentation submitted with the proposal should be bound in that single volume.
 - d) Proposals should be organized in the order in which the requirements are presented in the RFP. All pages of the proposal should be numbered. Each paragraph in the proposal should reference the paragraph number corresponding section of the RFP. It is also helpful to cite the paragraph number, sub letter and repeat the text of the requirement as it appears in the RFP. The proposal should contain a table of contents which cross references the RFP requirements. Information which the Offeror desires to present that does not fall within any of the requirement of the RFP should be inserted at the appropriate place or be attached at the end of the proposal and designated as additional material.
 - (1) A WORD version of this RFP will be provided upon request.
 - e) Except as provided, once an award is announced, all proposals submitted in response to this RFP will be open to inspection by any citizen, or interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a firm prior to or as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act only under the following circumstances: (1) the appropriate information is clearly identified by some distinct method such as highlighting or underlining; (2) only the specific words, figures, or paragraphs that constitute trade secrets or proprietary information are

identified; and (3) a summary page is supplied immediately following the proposal title page that includes (a) the information to be protected, (b) the section(s)/page number(s) where this information is found in the proposal, and (c) a statement why protection is necessary for each section listed. The firm must also provide a separate electronic copy of the proposal (CD, etc.) with the trade secrets and/or proprietary information redacted. *If all of these requirements are not met, then the firm's entire proposal will be available for public inspection.* IMPORTANT: A firm may not request that its entire proposal be treated as a trade secret or proprietary information, nor may a firm request that its pricing/fees be treated as a trade secret or proprietary information, or otherwise be deemed confidential. If after given a reasonable time, the Offeror refuses to withdraw the aforementioned designation, the proposal will be rejected.

3. Oral Presentation: Offerors who submit a proposal in response to this RFP may be required to give an oral presentation/demonstration of their proposal/product to Mason. This will provide an opportunity for the Offeror to clarify or elaborate on their proposal. Performance during oral presentations may affect the final award decision. If required, oral presentations are tentatively scheduled for Week of May 13th, 2019. Mason will expect that the person or persons who will be working on the project to make the presentation so experience of the contractor's staff can be evaluated prior to making selection. Oral presentations are an option of Mason and may or may not be conducted; therefore, it is imperative all proposals should be complete

The MediaPreserve understands and agrees to the General Requirements outlined above.

- B. SPECIFIC REQUIREMENTS: Proposals should be as thorough and detailed as possible to allow Mason to properly evaluate the Offeror's capabilities and approach toward providing the required services. Offerors are required to submit the following items as a complete proposal.
 1. Procedural information:
 - a) Return signed cover page and all addenda, if any, signed and completed as required.
 - b) Return Attachment A - Vendor Data Sheet.
 - c) State your payment preference in your proposal response. (See section XV.)
 2. Qualifications and Experience: Describe your experience, qualifications and success in providing the services described in the Statement of Needs to include the following:
 - a) Describe your experience in providing similar services described in the Statement of Needs.

The MediaPreserve was established in 2006 with the goal of providing high-quality digital transfers and metadata tailored to our clients' specific needs. . We have digitized assets for hundreds of institutions, universities, and museums transferring an array of formats including wire recordings, 1/4" open reel, VHS, 2" Quad, 9.5mm to 70mm film and many more. Our work has covered numerous genres, including home movies, propaganda film, documentaries, and works of art, as well as news, athletics, scientific recordings, music and educational programs.

Section IV. About The MediaPreserve on page 30 provides an overview of our company's experience and purpose.

We have provided detailed reference information from the University of Iowa, the New York Public Library, the University of Minnesota and Georgetown University. With each of these institutions we provided digitization services on media types similar to the types indicated in

this RFP, as well as in similar quantities over similar time periods. Please refer to page 28 for more.

b) Qualifications and resumes of personnel working with Mason.

Detailed biographies of key personnel at The MediaPreserve may be found beginning on page on page 63 of this RFP. To ensure that all assets are handled, transferred, and assigned metadata according to current professional standards and practices, The MediaPreserve retains a trained staff of librarians and archivists (Dawn Aveline, Madison Stubblefield, Kallie Sheets, Christopher Mills), preservation experts (Robert Strauss, Jason Graham, Heath Condiotte), engineers (Trey Bunn, Tim Carranza, David Cetra, Grant Fletcher, Diana Little, and Matthew Ruzomberka) and IT experts (Herb Stull, Scott Cooper, Steve Lasanich). The range of backgrounds and experience offered by our staff makes The MediaPreserve uniquely equipped to handle all aspects of audiovisual preservation.

3. Specific Plan (Methodology): Explain your approach/specific plans for providing the proposed services outlined in the Statement of Needs.

Our specific methodologies for transfer of audio, video, and film assets are described in depth in the following pages of this RFP. Technical details for Audio are found starting on page 36; details for Video are found beginning on page 44. Film transfer details begin on page 53.

4. References: No fewer than three (3) that demonstrates the Offeror's qualifications, preferably from other comparable higher education institutions your company is/has provided services with and that are similar in size and scope to that which has been described herein. Include a contact name, contact title, phone number, and email address for each reference and indicate the length of service.

Please see page 28 for our selected references.

5. Proposed Pricing: Provide your pricing to complete the services outlined in the Statement of Needs.

Proposed pricing for each of the formats indicated in the Addendum are found on page 18.

The MediaPreserve has provided all of the required information above within this RFP Response.

- C. IDENTIFICATION OF THE PROPOSAL ENVELOPE: Return envelopes are not being provided. It is the responsibility of the Offeror to clearly mark submission envelopes identifying the contents as a response to this Request For Proposal as follows:

FROM: Name of Offeror____Due Date/Time: April 18, 2019 @ 2:00PM EST

Street or Box Number____RFP Number: GMU-1564-19

City, State, Zip Code____RFP Title: Audio Visual Reproduction Services

Name of Procurement Officer or Buyer: Erin Rauch, Assistant Director

The envelope or package should be addressed to the Issuing Agency as directed on Page 1 of the solicitation. If a proposal is mailed, the Offeror takes the risk that the envelope/package, even if marked as described above, may be inadvertently opened and the information compromised which may cause the proposal to be disqualified. Proposals may be hand delivered to the designated location in the office issuing the solicitation. No other correspondence or other bid/proposal should be placed in the envelope.

The MediaPreserve understands the above and will identify its proposal contents as indicated.

XIII. INITIAL EVALUATION CRITERIA AND SUBSEQUENT AWARD:

- A. INITIAL EVALUATION CRITERIA: Proposals shall be initially evaluated and ranked using the following criteria:

<u>Description of Criteria</u>	<u>Maximum Point Value</u>
1. Methodology/Approach.	25
2. Proposal.	25
3. References of similar size and scope.	20
4. Proposed Pricing.	25
5. Vendor is certified as a small, minority, or women-owned business (SWaM) with Virginia SBSD at the proposal due date & time.	5
Total Points Available:	100

- B. AWARD: Following the initial scoring by the evaluation committee, at least two or more top ranked offerors may be contacted for oral presentations/demonstrations or advanced directly to the negotiations stage. *If oral presentations are conducted Mason will then determine, in its sole discretion, which vendors will advance to the negotiations phase.* Negotiations shall then be conducted with each of the offerors so selected. Price shall be considered but need not be the sole determining factor. After negotiations have been conducted with each offeror so selected, Mason shall select the offeror which, in its sole discretion has made the best proposal, and shall award the contract to that offeror. When the terms and conditions of multiple awards are so provided in the Request for Proposal, awards may be made to more than one offeror. Should Mason determine in writing and in its sole discretion that only one offeror has made the best proposal, a contract may be negotiated and awarded to that offeror. Mason is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous (*Governing Rules §49.D*).

The MediaPreserve understands and agrees to the evaluation criteria and conditions outlined above.

- XIV. CONTRACT ADMINISTRATION: Upon award of the contract, Mason shall designate, in writing, the name of the Contract Administrator who shall work with the contractor in formulating mutually acceptable plans and standards for the operations of this service. The Contract Administrator shall use all powers under the contract to enforce its faithful performance. The Contract Administrator shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, or their designee(s) however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope of the work or change the basis for compensation to the contractor.

The MediaPreserve understands that George Mason will assign a Contract Administrator to the project. The MediaPreserve will have a Preservation Program Specialist assigned as well to coordinate a plan and standards for this project.

- XV. PAYMENT TERMS / METHOD OF PAYMENT:

PLEASE NOTE: THE VENDOR MUST REFERENCE THE PURCHASE ORDER NUMBER ON ALL INVOICES SUBMITTED FOR PAYMENT.

Option #1- Payment to be mailed in 10 days-Mason will make payment to the vendor under 2% 10 Net 30 payment terms. Invoices should be submitted via email to the designated Accounts Payable email address which is acctpay@gmu.edu. The 10 day payment period begins the first business day after receipt of proper invoice or receipt of goods, whichever occurs last. A paper check will be mailed on or before the 10th day.

Option #2- To be paid in 20 days. The vendor may opt to be paid through our ePayables credit card program. The vendor shall submit an invoice and will be paid via credit card on the 20th day from receipt of a valid invoice. The vendor will incur standard credit card interchange fees through their processor. All invoices should be sent to:

George Mason University Accounts Payable Department

4400 University Drive, Mailstop 3C1 Fairfax, Va. 22030

Voice: 703.993.2580 | Fax: 703.993.2589

e-mail: AcctPay@gmu.edu

Option#3- Net 30 Payment Terms. Vendor will enroll in Paymode-X where all payments will be made electronically to the vendor's bank account. For additional information or to sign up for electronic payments, go to <http://www.paymode.com/gmu>. There is no charge to the vendor for enrolling in this service.

Please state your payment preference in your proposal response.

The MediaPreserve will accept either Option 2 or Option 3.

XVI. SOLICITATION TERMS AND CONDITIONS:

A. GENERAL TERMS AND CONDITIONS—GEORGE MASON UNIVERSITY:

<http://fiscal.gmu.edu/purchasing/do-business-with-mason/view-current-solicitation-opportunities/>

B. SPECIAL TERMS AND CONDITIONS – GMU-1564-19. (Also see ATTACHMENT B – SAMPLE CONTRACT which contains terms and conditions that will govern any resulting award).

1. **BEST AND FINAL OFFER (BAFO):** At the conclusion of negotiations, the Offeror(s) may be asked to submit in writing, a best and final offer (BAFO). After the BAFO is submitted, no further negotiations shall be conducted with the Offeror(s).
2. **CANCELLATION OF CONTRACT:** Mason reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 30 days written notice to the Contractor. In the event the initial Contract period is for more than 12 months, the resulting contract may be terminated by either party, without penalty, after the initial 12 months of the Contract period upon 30 written notice to the other party. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.
3. **COMPLIANCE WITH LAW:** (If Applicable): All goods and services provided to George Mason University shall be done so in accordance with any and all local, state and federal laws, regulations and/or requirements. This includes any applicable provisions of FERPA or the "Government Data Collection and Dissemination Practices Act" of the Commonwealth of Virginia.
4. **CONFLICT OF INTEREST:** By submitting a proposal the contractor warrants that he/she has fully complied with the Virginia Conflict of Interest Act; furthermore certifying that he/she is not currently an employee of the Commonwealth of Virginia.
5. **LATE PROPOSALS:** To be considered, proposals must be received at the specific office location specified in this solicitation on or before the date and time designated in this solicitation.

Offerors are responsible for the delivery of the proposal and if using U.S. Mail or a delivery service should ensure that the proposal is addressed properly. Proposals are due at 2:00PM on the date specified on the cover page of this solicitation. The Purchasing Department will contact the Offeror to arrange for pick up or destruction of the late proposal. The official time used in receipt of proposals shall be the time on the automatic time stamp machine of Mason's Purchasing Office, address and location on cover page of solicitation.

George Mason University is not responsible for delays in the delivery of mail by the U.S. Postal Service, private couriers, or the intra-university mail system. It is the responsibility of the Offeror to ensure that its proposal reaches the issuing office by the designated date and hour.

6. **OBLIGATION OF OFFEROR:** It is the responsibility of each Offeror to inquire about and clarify any requirements of this solicitation that is not understood. Mason will not be bound by oral explanations as to the meaning of specifications or language contained in this solicitation. Therefore, all inquiries must be in writing and submitted as instructed on page 1 of this solicitation. By submitting a proposal, the Offeror covenants and agrees that they have satisfied themselves, from their own investigation of the conditions to be met, that they fully understand their obligation and that they will not make any claim for, or have right to cancellation or relief from this contract because of any misunderstanding or lack of information.
7. **RENEWAL OF CONTRACT:** This contract may be renewed by Mason for four (4) successive one-year periods, or as negotiated, under the terms and conditions of the original contract except as stated in 1. and 2. below. Price increases may be negotiated only at the time of renewal. Written notice of the Commonwealth's intention to renew shall be given approximately 90 days prior to the expiration date of each contract period.
 - a) If the Commonwealth elects to exercise the option to renew the contract for an additional one-year period, the contract price(s) for the additional one year shall not exceed the contract price(s) of the original contract increased/decreased by more than the percentage increase/decrease of the "services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available.
 - b) If during any subsequent renewal periods, the Commonwealth elects to exercise the option to renew the contract, the contract price(s) for the subsequent renewal period shall not exceed the contract price(s) of the previous renewal period increased/decreased by more than the percentage increase/decrease of the "services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available.
8. **RFP DEBRIEFING:** In accordance with §49 of the Governing Rules Mason is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous. However upon request we will provide a scoring/ranking summary and the award justification memo from the evaluation committee. Formal debriefings are generally not offered.
9. **SUBCONTRACTS:** No portion of the work shall be subcontracted without prior written consent of Mason's Purchasing office. In the event that the contractor desires to subcontract some part of the work specified herein, the contractor shall furnish Mason's Purchasing office the names, qualifications, criminal background checks and experience of their proposed subcontractors. The Contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of the contract.

The MediaPreserve performs all work in our facility in Cranberry Township. No work is completed by subcontractors.

The MediaPreserve understands and agrees to the Solicitation Terms and Conditions outlined above.

XVII. RFP SCHEDULE (Subject to Change):

- Issue in eVA: 3/27/19
- Advertise in Washington Post: 3/27/19
- Vendors submit questions by: 4/04/19 by 4:00 PM EST
- Post Question Responses: 4/08/19 by 5:00 PM EST
- Proposals Due: 4/18/19 @ 2:00 PM EST
- Proposals to Committee: 4/22/19
- Review and Score Proposals: 4/22/19 – 5/10/19
- Scores to Purchasing: 5/10/19
- Oral presentations (if necessary): Week of 5/13/19
- Negotiations/BAFO: Week of 5/20/19
- Award: TBD
- Contract Start Date: TBD

The MediaPreserve agrees to and understands the outlined schedule above.

C. Deliverables

Digital Files:

The MediaPreserve will provide XML metadata along with the following digital files:

Audio:	Archival Master:	24bit / 96kHz Broadcast WAV
	Mezzanine:	16bit / 44kHz Broadcast WAV
	Streaming File:	MP3 / 44.1 kHz at 256 kbps
Video:	Preservation Master:	10-bit YUV uncompressed .mov, 720 x 486, 16-bit PCM 48 kHz
	Mezzanine File:	DV-25, 720 x 480, 12-bit PCM 32 kHz
	Streaming File:	H264 / MP4, 640x480, 8-bit, 1,100 kbps, AAC; stereo 128 kbps 48 kHz
Film:	Preservation Master:	10-bit YUV uncompressed .mov, 720 x 486, 16-bit PCM 48 kHz
	Mezzanine File:	DV-25, 720 x 480, 12-bit PCM 32 kHz
	Streaming File:	H264 / MP4, 640x480, 8-bit, 1,100 kbps, AAC; stereo 128 kbps 48 kHz

Deliverables: The MediaPreserve will provide all deliverable files on a portable hard drive provided at cost. If the drive is returned within 90 days of receipt the cost will be refunded.

Shipping & Logistics: Your assets are fully insured with fine arts insurance from the moment they leave your door until the moment they return.

D. Pricing proposal

AUDIOVISUAL DIGITIZATION			
	Assets	Cost Per Asset*	Estimated Budget
Audio – based on 60 minutes runtime			
NAB Cartridge**	12	\$250.00	\$3000.00
DAT	33	\$18.00	\$594.00
Micro Cassette	204	\$17.00	\$3,468.00
Open-Reel Audiotape	592	\$22.00	\$13,024.00
Disc Media [Grooved Discs]	703	\$45.00	\$31,635.00
Audio Cassette	5041	\$17.00	\$85,697.00
Film – Standard Definition			
8 mm Film (based on estimated 25ft length)	64	\$75.00	\$4,800.00
16 mm Film (based on estimated 400ft length)	278	\$100.00	\$27,800.00
Video – based on 60 minutes runtime			
DVCAM	7	\$20.00	\$140.00
MII	9	\$18.00	\$162.00
MiniDV	15	\$18.00	\$270.00
Video8 / Hi8	30	\$18.00	\$540.00
Open-Reel Videotape	42	\$75.00	\$3,150.00
Betamax	116	\$18.00	\$2,088.00
Betacam	242	\$18.00	\$4,356.00
3/4" U-Matic	999	\$20.00	\$19,980.00
VHS Cassette	1188	\$18.00	\$21,384.00
Total	9,575	\$222,088.00	
Deliverables			
Metadata Creation	Included		
Basic Cleaning and Preparation	Included		
Returnable Hard Drive(s)	Please return within 90 Days of Receipt, or purchase at cost		
Shipping & Logistics (estimated)	Lowest Negotiable Rate		

*All asset costs were based on runtimes indicated by format, above. If runtimes prove longer than estimated, prices may be adjusted accordingly.

** For NAB cartridges, in the event the cartridge will not play in our machines, we will Contact George Mason University for permission to remove the tape and place it on an audio reel for transfer using a different machine. The original casing will be returned.

RFP Addendum No. 1



Purchasing Department
Mailing Address: 4400 University Drive, Mailstop 3C5
Street Address: 4441 George Mason Boulevard, 4th Floor, Suite 4200
Fairfax, Va. 22030
Phone: 703.993.2580 | Fax: 703.993.2589
<http://fiscal.gmu.edu/purchasing/>

RFP ADDENDUM NO. 1:

Date: April 2, 2019
Reference: RFP# GMU-1564-19
Title: Audio Visual Reproduction Services
RFP Issued: March 27, 2019
RFP Due Date: **April 18, 2019 @ 2:00 PM EST**

The following changes are hereby incorporated into the aforementioned RFP:

1. ADD ATTACHEMNT C: Breakdown of Formats

Offeror shall acknowledge receipt of this Addendum by completing the signature section below **and shall include the signed addendum in his/her proposal.**

I hereby acknowledge receipt of Addendum No. 1- RFP# GMU-1564-19 for Audio Visual Reproduction Services.

The MediaPreserve

NAME OF FIRM

Robert Strauss

NAME (Print or Type)

SIGNATURE

DATE

4/17/19

Attachment A: Vendor Data Sheet

**ATTACHMENT A
VENDOR DATA SHEET
TO BE COMPLETED BY OFFEROR**

1. QUALIFICATION OF OFFEROR: The Offeror certifies that they have the capability and capacity in all respects to fully satisfy all of the contractual requirements.
2. YEARS IN BUSINESS: Indicate the length of time in business providing this type of service:

Type of Business: Limited Partnership 27 Years _____ Months

3. BUSINESS STATUS:

A. Type of organization (circle one):

Individual
Sole Proprietor

Partnership
Government

Corporation
Other (explain)

B. Category (circle one):

Manufacturer/Producer
Service Establishment
Other (explain)

Mfg.'s Agent
Distributor

Retailer
Wholesaler

- C. Status: If your classification is certified by the Virginia Department of Small Business and Supplier Diversity (SBSD), provide your certification number _____. For certification assistance, please visit <http://www.sbsd.virginia.gov/>. (Please check all applicable classifications. Must be certified with **VIRGINIA SBSBD** to qualify)

____ (MB) MINORITY OWNED. "Minority-owned business" means a business that is at least 51% owned by one or more minority individuals who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership, or limited liability company or other entity, at least 51% of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more minority individuals who are U.S. citizens or legal resident aliens, and both the management and daily business operations are controlled by one or more minority individuals.

____ (WB) WOMAN OWNED. "Women-owned business" means a business that is at least 51% owned by one or more women who are U.S. citizens or legal resident aliens, or in the case of a corporation, partnership, or limited liability company or other entity, at least 51% of the equity ownership interest is owned by one or more women who are citizens of the United States or legal resident aliens, and both the management and daily business operations are controlled by one or more women.

X (SB) SMALL BUSINESS: "Small business" means a business that is at least 51% independently owned and controlled by one or more individuals who are U.S. citizens or legal resident aliens, and together with affiliates, has 250 or fewer employees, or average annual gross receipts of \$10 million or less averaged over the _____ previous three years. One or more of these individual owners shall control both the management and daily business operations of the small business.

____ LARGE BUSINESS

I certify the accuracy of this information.

Signed: [Signature] Title: Vice President

Printed Name: ROBERT J. STRAUSS Date: April 17, 2019

Attachment B: Sample Contract



Purchasing Department
4400 University Drive, Mailstop 3C5
Fairfax, VA 22030
Voice: 703.993.2580 | Fax: 703.993.2589
<http://fiscal.gmu.edu/purchasing/>

ATTACHMENT B – SAMPLE CONTRACT

GMU-1564-19

Note: Other documents may be incorporated into this document, either by way of attachment or by reference, but in all cases this contract document shall take precedence over all other documents and will govern the terms and conditions of the contract.

This Contract entered on this ____ day of _____ by _____ hereinafter called “Contractor” (located at _____) and George Mason University hereinafter called “Mason,” “University.”

- I. **WITNESSETH** that the Contractor and Mason, in consideration of the mutual covenants, promises and agreement herein contained, agree as follows:
- II. **SCOPE OF CONTRACT:** The Contractor shall provide _____ for the _____ as set forth in the Contract Documents.
- III. **PERIOD OF CONTRACT:** As negotiated
- IV. **PRICE SCHEDULE:** As negotiated
- V. **CONTRACT ADMINISTRATION:** _____ shall serve as Contract Administrator for this Contract and shall use all powers under the Contract to enforce its faithful performance. The Contract Administrators shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope or change the basis for compensation.
- VI. **METHOD OF PAYMENT:** As negotiated
- VII. **THE CONTRACT DOCUMENTS SHALL CONSIST OF (In order of precedence):**
 - A. This signed form;
 - B. RFP No. GMU-XXXX-XX, in its entirety (incorporated herein by reference);
 - C. Contractor’s proposal dated XXXXXX (incorporated herein by reference);
 - D. Negotiation Responses dated XXXXXX (incorporated herein by reference).
- VIII. **GOVERNING RULES:** This Contract is governed by the provisions of the Restructured Higher Education Financial and Administrative Operations Act, Chapter 10 (§ [23.1-1000](#) et seq.) of Title 23.1 of the Code of Virginia, and in particular § [23.1-1003](#) of the Restructuring Act (“Memoranda of Understanding”), and the “*Governing Rules*” and the *Purchasing Manual for Institutions of Higher Education and their Vendors*. Documents may be viewed at: <https://vascupp.org>.
- IX. **CONTRACT PARTICIPATION:** It is the intent of this Contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access this Contract if authorized by the Contractor.

Participation in this Contract is strictly voluntary. If authorized by the Contractor, the contract will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor(s) and shall fully and independently administer its use of the contract(s) to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this Contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract

to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the Contractor.

The University may request the Contractor provide semi-annual usage reports for all entities accessing the Contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the Contract. It is understood and agreed that the University is not responsible for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this Contract does not preclude any participating entity from using other contracts or competitive processes as needed.

X. STANDARD TERMS AND CONDITIONS:

- A. **APPLICABLE LAW AND CHOICE OF FORUM:** This Contract shall be construed, governed, and interpreted pursuant to the laws of the Commonwealth of Virginia. All disputes arising under this Contract shall be brought before an appropriate court in the Commonwealth of Virginia.
- B. **ANTI-DISCRIMINATION:** By entering into this Contract Contractor certifies to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and §§ 9&10 of the *Governing Rules*. If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the Contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Governing Rules*, § 36). In every contract over \$10,000 the provisions in 1. and 2. below apply:
1. During the performance of this Contract, the Contractor agrees as follows:
 - a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
 - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
 - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements.
 2. The Contractor will include the provisions of 1. above in every subcontract or purchase order over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.
- C. **ANTITRUST:** By entering into a contract, the Contractor conveys, sells, assigns, and transfers to the Commonwealth of Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the Commonwealth of Virginia under said Contract.
- D. **ASSIGNMENT:** Neither party will assign or otherwise transfer its rights or obligations under this Contract without both parties' prior written consent. Any attempted assignment, transfer, or delegation without such consent is void.
- E. **AUDIT:** The Contractor shall retain all books, records, and other documents relative to this Contract for five (5) years after final payment, or until audited by the Commonwealth of Virginia, whichever is sooner. The agency, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said

materials during said period.

- F. AVAILABILITY OF FUNDS: It is understood and agreed between the parties herein that the agency shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this agreement.
- G. AUTHORIZED SIGNATURES: The signatory for each Party certifies that he or she is an authorized agent to sign on behalf such Party.
- H. BACKGROUND CHECKS: Contractor's employees must have successfully completed a criminal background check prior to the start of their work assignment/service. As stated in [Administrative Policy Number 2221 – Background Investigations](#), the criminal background investigation will normally include a review of the individual's records to include Social Security Number Search, Credit Report (if related to potential job duties), Criminal Records Search (any misdemeanor convictions and/or felony convictions are reported) in all states in which the employee has lived or worked over the past seven years, and the National Sex Offender Registry. In addition, the Global Watch list (maintained by the Office of Foreign Assets Control of The US Department of Treasury) should be reviewed. Signature on this Contract confirms your compliance with this requirement.
- I. CANCELLATION OF CONTRACT: Mason reserves the right to cancel and terminate this Contract, in part or in whole, without penalty, upon 30 days written notice to the Contractor. In the event the initial Contract period is for more than 12 months, the resulting Contract may be terminated by either party, without penalty, after the initial 12 months of the Contract period upon 30 days written notice to the other party. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.
- J. CLAIMS: Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment. However, written notice of the Contractor's intention to file a claim shall be given at the time of the occurrence or beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.
1. The firm must submit written claim to:
Chief Procurement Officer
George Mason University
4400 University Drive, MSN 3C5
Fairfax, VA 22030
 2. The firm must submit any unresolved claim in writing no later than 60 days after final payment to the Chief Procurement Officer.
 3. Upon receiving the written claim, the Chief Procurement Officer will review the written materials relating to the claim and will mail his or her decision to the firm within 60 days after receipt of the claim.
 4. The firm may appeal the Chief Procurement Officer's decision in accordance with § 55 of the *Governing Rules*.
- K. COLLECTION AND ATTORNEY'S FEES: The Contractor shall pay to Mason any reasonable attorney's fees or collection fees, at the maximum allowable rate permitted under Virginia law, incurred in enforcing this Contract or pursuing and collecting past-due amounts under this Contract.
- L. COMPLIANCE WITH LAW: All goods and services provided to Mason shall be done so in accordance with any and all local, state and federal laws, regulations and/or requirements. This includes any applicable provisions of FERPA or the "Government Data Collection and Dissemination Practices Act" of the Commonwealth of Virginia.
- M. CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION: The Contractor shall ensure that personally identifiable information which may include but is not limited to personal identifiers such as name, address, phone, date of birth, Social Security number, student or personal identification number, non-

directory information and any other information protected by state or federal privacy laws will be collected and held confidential, during and following the term of this Contract, and will not be divulged without the individual's and Mason's written consent and only in accordance with federal law or the Code of Virginia. The Contractor shall utilize, access, or store personally identifiable information as part of the performance of this Contract in a secure environment and immediately notify Mason of any breach or suspected breach in the security of such information. Contractor shall allow Mason to both participate in the investigation of incidents and exercise control over decisions regarding external reporting. If Contractor provides goods and services that require the exchange of personal identifiable information the following Data Security Addendum shall apply and be incorporated into this Contract: <http://fiscal.gmu.edu/wp-content/uploads/2017/04/Data-Security-Addendum.pdf>

N. **CONFLICT OF INTEREST:** Contractor represents to Mason that its entering into this Contract with Mason and its performance through its agents, officers and employees does not and will not involve, contribute to nor create a conflict of interest prohibited by Virginia State and Local Government Conflict of Interests Act (Va. Code 2.2-3100 *et seq*), the Virginia Ethics in Public Contracting Act (§57 of the *Governing Rules*), the Virginia Governmental Frauds Act (Va. Code 18.2 – 498.1 *et seq*) or any other applicable law or regulation.

O. **DEBARMENT STATUS:** As of the effective date, the Contractor certifies that it is not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of services covered by this Contract, nor is the Contractor an agent of any person or entity that is currently so debarred.

P. **DRUG-FREE WORKPLACE:** During the performance of this Contract, the Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with this Contract awarded to Contractor, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the Contract.

Q. **ENTIRE CONTRACT:** This Contract constitutes the entire understanding of the Parties with respect to the subject matter herein and supersedes all prior oral or written contracts with respect to the subject matter herein. This Contract can be modified or amended only by a writing signed by all of the Parties.

R. **EXPORT CONTROL:**

1. **Munitions Items:** If the Contractor is providing any items, data or services under this order that are controlled by the Department of State, Directorate of Defense Trade Controls, International Traffic in Arms Regulations (“ITAR”), or any items, technology or software controlled under the “600 series” classifications of the Bureau of Industry and Security’s Commerce Control List (“CCL”) (collectively, “Munitions Items”), prior to delivery, Contractor must:

(i) notify Mason (by sending an email to export@gmu.edu), and

(ii) receive written authorization for shipment from Mason’s Director of Export Controls.

The notification provided by the Contractor must include the name of the Mason point of contact, identify and describe each ITAR or CCL-controlled commodity, provide the associated U.S. Munitions List (USML) category number(s) or Export Control Classification Number, and indicate whether or not the determination was reached as a result of a commodity jurisdiction determination, or self-classification process. The Contractor promises that if it fails to obtain the required written pre-authorization approval for shipment to Mason of any Munitions Item, it will reimburse Mason for any fines, legal costs and other fees imposed for any violation of export controls regarding the Munition Item that are reasonably related to the Contractor’s failure to provide notice or obtain Mason’s written pre-authorization.

2. **Dual-Use Items:** If the Contractor is providing any dual-use items, technology or software under this order that are listed on the CCL in a series other than a “600 series”, Contractor must (i) include the Export Control Classification Number (ECCN) on the packing or other transmittal documentation traveling with the item(s) and, (ii) send a description of the item, its ECCN, and the name of the Mason point of contact to: export@gmu.edu.
- S. **FORCE MAJEURE:** Mason will not be responsible for any losses resulting from delay or failure in performance resulting from any cause beyond Mason’s control, including without limitation: war, strikes or labor disputes, civil disturbances, fires, natural disasters, and acts of God.
- T. **IMMIGRATION REFORM AND CONTROL ACT OF 1986:** By entering into this Contract Contractor certifies that they do not and will not during the performance of this Contract employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.
- U. **INDEMNIFICATION:** Contractor agrees to indemnify, defend and hold harmless George Mason University the Commonwealth of Virginia, its officers, agents, and employees from any claims, damages and actions of any kind or nature, whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the Contractor/any services of any kind or nature furnished by the Contractor, provided that such liability is not attributable to the sole negligence of the using agency or to failure of the using agency to use the materials, goods, or equipment in the manner already and permanently described by the Contractor on the materials, goods or equipment delivered.
- V. **INDEPENDENT CONTRACTOR:** The Contractor is not an employee of Mason, but is engaged as an independent contractor. The Contractor shall indemnify and hold harmless the Commonwealth of Virginia, Mason, and its employees and agents, with respect to all withholding, Social Security, unemployment compensation and all other taxes or amounts of any kind relating to the Contractor’s performance of this Contract. Nothing in this Contract shall be construed as authority for the Contractor to make commitments which will bind Mason or to otherwise act on behalf of Mason, except as Mason may expressly authorize in writing.
- W. **INFORMATION SECURITY:** In cases where the contractor will store, process or transmit credit card data for the University, contractor represents and warrants that for the life of the contract and while contractor has possession of University customer cardholder data, the software and services used for processing transactions shall be compliant with standards established by the Payment Card Industry (PCI) Security Standards Council (www.pcisecuritystandards.org). In the case of a third-party application, the application will be listed as PA-DSS compliant at the time of implementation by the University. Contractor acknowledges and agrees that it is responsible for the security of all University customer cardholder data in its possession. Contractor agrees to indemnify and hold University, its officers, employees, and agents, harmless for, from, and against any and all claims, causes of action, suits, judgments, assessments, costs (including reasonable attorneys’ fees), and expenses arising out of or relating to any loss of University customer credit card or identity information managed, retained, or maintained by contractor, including but not limited to fraudulent or unapproved use of such credit card or identity information. Contractor shall, upon written request, furnish proof of compliance with the Payment Card Industry Data Security Standard (PCI DSS) within 10 business days of the request. Contractor agrees that, notwithstanding anything to the contrary in the Agreement or the Addendum, the University may terminate the Agreement immediately without penalty upon notice to the contractor in the event contractor fails to maintain compliance with the PCI DSS or fails to maintain the confidentiality or integrity of any cardholder data.
- X. **INFORMATION TECHNOLOGY ACCESS ACT:** Computer and network security is of paramount concern at George Mason University. The University wants to ensure that computer/network hardware and software does not compromise the security of its IT environment. You agree to use commercially reasonable measures in connection with any offering your company makes to avoid any known threat to the security of the IT environment at George Mason University.

All e-learning and information technology developed, purchased, upgraded or renewed by or for the use of George Mason University shall comply with all applicable University policies, Federal and State laws and regulations including but not limited to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), the Information Technology Access Act, §§2.2-3500 through 2.2-3504 of the Code of Virginia, as amended, and all other regulations promulgated under Title II of The Americans with Disabilities Act which are applicable to all benefits, services, programs, and activities provided by or on behalf of the University. The Contractor shall also

comply with the Web Content Accessibility Guidelines (WCAG) 2.0. For more information please visit <http://ati.gmu.edu>, under Policies and Procedures.

- Y. **INSURANCE:** The Contractor shall maintain all insurance necessary with respect to the services provided to Mason. The Contractor further certifies that they will maintain the insurance coverage during the entire term of the Contract and that all insurance is to be placed with insurers with a current reasonable A.M. Best's rating authorized to sell insurance in the Commonwealth of Virginia by the Virginia State Corporation Commission. The Commonwealth of Virginia and Mason shall be named as an additional insured.
1. Commercial General Liability Insurance in an amount not less than \$1,000,000 per occurrence for bodily injury or property damage, personal injury and advertising injury, products and completed operations coverage;
 2. Workers Compensation Insurance in an amount not less than that prescribed by statutory limits; and, as applicable;
 3. Commercial Automobile Liability Insurance applicable to bodily injury and property damage, covering owned, non-owned, leased, and hired vehicles in an amount not less than \$1,000,000 per occurrence; and
 4. An umbrella/excess policy in an amount not less than five million dollars (\$5,000,000) to apply over and above Commercial General Liability, Employer's Liability, Workers' Compensation, and Commercial Automobile Liability Insurance.
- Z. **INTELLECTUAL PROPERTY:** Contractor warrants and represents that it will not violate or infringe any intellectual property right or any other personal or proprietary right and shall indemnify and hold harmless Mason against any claim of infringement of intellectual property rights which may arise under this Contract.
- AA. **NON-DISCRIMINATION:** All parties to this Contract agree to not discriminate on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age (except where sex or age is a bona fide occupational qualification, marital status or disability).
- BB. **PUBLICITY:** The Contractor shall not use, in its external advertising, marketing programs or promotional efforts, any data, pictures, trademarks or other representation of Mason except on the specific written authorization in advance by Mason's designated representative.
- CC. **REMEDIES:** If the Contractor breaches this Contract, in addition to any other rights or remedies, Mason may terminate this Contract without prior notice.
- DD. **RENEWAL OF CONTRACT:** This Contract may be renewed by the University as negotiated under the terms and conditions of the original contract except as stated in 1. and 2. below. Price increases may be negotiated only at the time of renewal. Written notice of the University's intention to renew shall be given approximately 90 days prior to the expiration date of each contract period.
1. If the University elects to exercise the option to renew the Contract for an additional one-year period, the Contract price(s) for the additional one year shall not exceed the Contract price(s) of the original Contract increased/decreased by more than the percentage increase/decrease of the "services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available.
 2. If during any subsequent renewal periods, the University elects to exercise the option to renew the Contract, the Contract price(s) for the subsequent renewal period shall not exceed the Contract price(s) of the previous renewal period increased/decreased by more than the percentage increase/decrease of the "services" category of the CPI-U section of the Consumer Price Index of the United States bureau of Labor Statistics for the latest twelve months for which statistics are available.
- EE. **REPORTING OF CRIMES, ACCIDENTS, FIRES AND OTHER EMERGENCIES:** Any Mason Employee, including contracted service providers, who is not a staff member in Counseling and Psychological Services (CAPS) or a pastoral counselor, functioning within the scope of that recognition, is considered a "Campus Security Authority (CSA)." CSAs must promptly report all crimes and other emergencies occurring on or near property owned or controlled by Mason to the Department of Police & Public Safety or local police and fire

authorities by dialing 9-1-1. At the request of a victim or survivor, identifying information may be excluded from a report (e.g., names, initials, contact information, etc.). Please visit the following website for more information and training: <http://police.gmu.edu/clery-act-reporting/campus-security-authority-csa/>.”

- FF. SOC/SSAE16: To facilitate compliance with SSAE16, vendor must provide George Mason University with its most recent SOC report and that of all subservice provider(s) relevant to this contract. It is further agreed that the SOC report, which will be free of cost to George Mason University, will be provided annually, within 30 days of its issuance by the auditor, and no later than February 1. The SOC report should be directed to Mrs. Peaches Nicholls at pnicholl@gmu.edu or other representative identified by the University. Vendor also commits to providing George Mason University with a designated point of contact for the SOC report, addressing issues raised in the SOC report with relevant subservice provider(s), and responding to any follow up questions posed by George Mason University in relation to the SOC report.
- GG. SEVERABILITY: Should any portion of this Contract be declared invalid or unenforceable for any reason, such portion is deemed severable from the Contract and the remainder of this Contract shall remain fully valid and enforceable.
- HH. SOVEREIGN IMMUNITY: Nothing in this Contract shall be deemed a waiver of the sovereign immunity of the Commonwealth of Virginia and of Mason.
- II. SUBCONTRACTS: No portion of the work shall be subcontracted without prior written consent from Mason. In the event that the Contractor desires to subcontract some part of the work specified herein, the Contractor shall furnish Mason the names, qualifications and experience of their proposed subcontractors. The Contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of this Contract.
- JJ. UNIVERSITY REVIEW/APPROVAL: All goods, services, products, design, etc. produced by the Contractor for or on behalf of Mason are subject to Mason's review and approval.
- KK. WAIVER: The failure of a party to enforce any provision in this Contract shall not be deemed to be a waiver of such right.

Contractor Name Here

By:

Signature

Date

Name: _____

Title: _____

George Mason University

By:

Signature

Date

Name: _____

Title: _____

III. References

University of Iowa Libraries

Nancy E. Kraft
Preservation Librarian
Preservation & Conservation
100 Main Library
Iowa City, IA 52242-1420
319-335-5286
nancy-e-kraft@uiowa.edu

The University of Iowa entrusted The MediaPreserve with the transfer of many of their 35mm and 16mm films. First, we digitized roughly twenty films at the heart of the Michael Zahs Brinton Entertaining Company collection. Filmed on 35mm nitrate base and dating from about 1905, these films appeared to all be actuality footage, and were extremely fragile. Each film was carefully prepped by our engineers and scanned at high definition. We also digitized over one hundred 16mm films from the Iowa Women's Archive, documenting a variety of exercises and sports for young women during the middle of the twentieth century. Files for film assets were delivered on portable hard drives, LTO backup tapes, and Blu-ray discs.

The University of Iowa also entrusted The MediaPreserve with the transfer of a sample of NASA Explorer I and Explorer III tapes. The ingest of these tapes involved the purchase and use of specialized instrumentation equipment from NASA and extensive collaboration between The MediaPreserve's audio engineers and preservation staff, and staff from University of Iowa Preservation and Physics departments, as well as correspondence and sample services for review by one of the original physicists working on the Explorer project. The sample was deemed a success and The MediaPreserve transferred over 600 original recordings. After digitization was completed, the original reels were re-housed in archival boxes and given custom labels.

The New York Public Library

Rebecca Holte
Manager for Preservation Reformatting and Field Services
Barbara Goldsmith Preservation Division
The New York Public Library
40 Lincoln Center Plaza
New York, NY 10023
212-920-0623
rebeccaholte@nypl.org

The MediaPreserve completed several large video digitization projects for The New York Public Library in beginning in 2011. These contracts were awarded after responses to nation-wide RFPs and the subsequent satisfactory completion of an initial pilot project. We have digitized thousands of assets for the Library, including 1" Type C, U-matics, 8mm, 16mm, Betacam, Hi8, miniDV, VHS, SVHS, D1, cassettes, reel to reels, DATS and laserdiscs. Our work has spanned a variety of collections, including materials from the Jerome Robbins Dance Division, the Gay and Lesbian & HIV/AIDS Collection, and the Schomburg Center for Research in Black Culture. To date, we have digitized over 12,000 assets, most of which have arrived in batches of 800-900 items.

For each project, NYPL supplied an .xls spreadsheet containing client-generated metadata as well as fields for vendor-generated technical, descriptive, administrative and preservation metadata. After inspection of each asset, in instances where material requires special handling NYPL has been contacted in order to determine the best option for completion based upon MediaPreserve engineer recommendations. All actions are documented in

the metadata. All files have been delivered on portable hard drive in rolling batches and originals are shipped under separate cover from deliverables.

Georgetown University

Karen O'Connell
Lauinger Library
37th & O Streets NW
Washington, DC 20057
kho@georgetown.edu
202-687-7585

The MediaPreserve has partnered with Georgetown University since 2013 to digitize collections within the library system. We have digitized almost 400 films and over 1,000 audio assets for the university, following their provided specifications for each format. These collections have spanned over a variety of topics including university sports, lectures and ceremonies. The MediaPreserve continues to work with Georgetown University Libraries to preserve the history of their university through the digitization of this media.

University of Minnesota

Jason Roy
Director of Digital Library Services
223 Andersen Library
222 2nd Avenue South
Minneapolis, MN 55455
612.625.0028
jasonroy@umn.edu

The University of Minnesota Libraries worked with The MediaPreserve on the digitization hundreds of audio reels, cassettes and grooved discs spanning a wide variety of collections including interviews, oral histories and music. We have also transferred rare formats for the library, including audio dictabelts. In addition to working with the libraries, Last year we digitized over 300 videos and films of the Minnesota Orchestra. The MediaPreserve has done work for the University of Minnesota Foundation, transferring various formats documenting alumni events.

IV. About The MediaPreserve

Introduction

The MediaPreserve was established in 2006 with the specific aim of meeting our clients' audiovisual reformatting needs. By combining a team of professionals with exceptional expertise, a customer-centered approach, and an efficient, cost-effective workflow, we are able to provide the highest quality digitization services to all our clients.

The MediaPreserve performs careful and efficient transfers of audiovisual materials of all types. We are committed to creating customized preservation programs based on the needs and infrastructure of each client. To that end we retain a staff of trained engineers, archivists, librarians and preservation specialists to ensure that all assets are handled according to professional standards and best practices throughout the process.

Our engineers draw on their education, training, and extensive experience in analog audio and video preservation. They have worked on hundreds of cultural, historical and archival collections. They are all active within their engineering community and their respective field's professional organizations.

We designed our workflows based on standards, principles and recommendations from authorities like the Image Permanence Institute (IPI), Audio Engineering Society (AES), Association of Moving Image Archivists (AMIA), and Society of Motion Picture & Television Engineers (SMPTE), among others. Our engineers engage in continuing professional education to ensure that our studios conform to current best practices.

Purpose

The MediaPreserve has been in the audiovisual preservation business for twelve years. We have digitized assets for hundreds of institutions, universities, and museums transferring an array of formats including wire recordings, 1/4" open reel, VHS, 2" Quad, 9.5mm to 70mm film and many more. Our work has covered numerous genres, including home movies, propaganda film, documentaries, and works of art, as well as news, athletics, scientific recordings, music and educational programs.

Our senior engineers each have over 30 years in training and experience in audiovisual engineering, preservation and digitization. Pat Shevlin, our Director of Technology Emeritus, brought more than 40 years' experience working in the manufacturing, broadcast, and distribution of video content having worked at AMPEX, Merlin Engineering, Carson Productions, PBS, Time-Warner and Technicolor. He also brought extensive knowledge of the physical carriers of audio and video in cassette and open reel formats, beginning with his work at AMPEX as a member of the development team that developed the first generation and second generation Quad VTRs, VR1100, VR2000 and the VR1200 series. At The MediaPreserve he provided clients with the security of knowing that their collections were in expert hands. His unique skill-set ensured that even the most difficult legacy formats could be safely transferred to high-quality digital files.

The studios at The MediaPreserve are designed and configured after the studios at the Packard Campus of the National Audio-Visual Conservation Center. Mr. Shevlin and Heath Condiotte, Production Manager, used their expertise to design The MediaPreserve's transfer studios. Their systems offer the flexibility to digitize fragile media or to perform high-capacity parallel ingest of robust materials. All studios are acoustically treated to the level of Noise Criterion 15 for air conditioning or heating noise and Sound Transmission Class 60-65 for wall, ceiling and door isolation between studio rooms.

We have the capacity to work with legacy and fragile formats, as well as stable or mass-marketed media. To accommodate the full range of possible media, we have developed two types of studio: multiple ingest studios for cassette-based media and specialized studios for fragile or difficult legacy formats.

Each studio has been professionally designed to offer the best possible setting for the various preservation activities required for each format. As The MediaPreserve expanded, the need to create a cost-effective solution for transferring large amounts of rapidly deteriorating magnetic media led to the creation of an engineer-monitored multiple ingest system congruent with the concepts outlined in Sound Directions. Capable of converting sixteen video assets and twelve or more audio assets simultaneously, the multiple ingest rooms were designed to accommodate large collections, specifically VHS, DigiBeta, ¾" U-matic and audiocassettes.

In addition to providing accurate and efficient transfer through multiple ingest, The MediaPreserve can also provide focused transfer of individual items in formats such as lacquer disc or film, or other format requiring special handling including artistic content or content found on fragile or damaged media.

Unlike other preservation studios, The MediaPreserve does not use robotic systems to run the multiple-ingest studios—our engineers monitor every asset. Consequently, engineers at The MediaPreserve can quickly and easily split an asset into multiple units of intellectual content. Likewise, intellectual content spread across multiple physical carriers can be collated into a single intellectual unit using the editing software carefully selected by our engineers. All assets are transferred head-to-tail and only split or collated upon request.

To ensure that all assets are handled, transferred, and assigned metadata according to current professional standards and practices, The MediaPreserve retains a trained staff of librarians and archivists (Dawn Aveline, Madison Stubblefield, Kallie Sheets, Christopher Mills), preservation experts (Robert Strauss, Jason Graham, Heath Condiotte), engineers (Trey Bunn, Tim Carranza, David Cetra, Grant Fletcher, Diana Little, and Matthew Ruzomberka) and IT experts (Herb Stull, Scott Cooper, Steve Lasanich). The range of backgrounds and experience offered by our staff makes The MediaPreserve uniquely equipped to handle all aspects of audiovisual preservation.

TRANSFER FACILITY

The MediaPreserve is a Division of Preservation Technologies, LP, with facilities located at 111 Thomson Park Drive, Cranberry Township, Pennsylvania 16066-6424. The MediaPreserve performs all work in our facility in Cranberry Township. No work is completed by subcontractors.

HVAC, HUMIDITY CONTROL, AND MONITORING SYSTEM

Studios at The MediaPreserve are acoustically quieted and isolated to Noise Criterion (NC) 15 for air conditioning or heating noise and to Sound Transmission Class (STC) of 60-65 for wall, ceiling, and door isolation between studio rooms.

Each room is equipped with an individual climate control system allowing temperatures to be raised or lowered as required by each project. For example, rooms can be cooled to a temperature low enough to safely play back tapes with soft binder syndrome.

Each room is monitored by individual data loggers.

STORAGE AND SECURITY

Materials are stored in secure, climate-controlled rooms. Each job is stored on racks dedicated solely to each client so related items remain grouped together physically.

The facility is equipped with multiple interior and exterior cameras which are closely monitored 24 hours a day by a private security company. Additionally, management personnel have remote access to images from the security cameras.

Every room at The MediaPreserve functions on an entrance keypad alarm system to ensure asset security. Access to studios and storage areas is limited to authorized personnel.

The MediaPreserve insures client's assets with ten million dollars' worth of fine arts coverage from the moment they leave the client's facility until the time they are returned.

FIRE AND DISASTER PROTECTION SYSTEMS

Each room of The MediaPreserve is equipped with fire and smoke detection systems. The MediaPreserve is protected by a dry pipe, low pressure sprinkler system and all rooms are equipped with an ABC fire extinguisher.

DISASTER PLAN

The MediaPreserve and Preservation Technologies work closely with our insurance provider and insurance adjusters. We conduct an annual review of all abatement and emergency response procedures to ensure that our manual is up to date.

We work closely with the local fire department and police station, both of which are within three blocks of the facility, to familiarize public officials with our system and coordinate any response to an emergency.

Every year we review our insurance and emergency plans to ensure that we have adequate fine arts and property insurance to cover any unexpected loss or business disruption. Currently, we provide 10 million dollars in fine arts insurance, 5 million dollars in professional responsibility and 5 million dollars in cybersecurity insurance.

POWER AND BACKUP POWER FACILITIES

Each studio is equipped with on-line UPS (Uninterruptable Power Supply) units to protect the playback machines from power interruptions that could potentially stretch or break fragile or vintage tape during the playback process.

FACILITY TECHNICAL POWER AND GROUNDING / SHIELDING

The electrical power distribution system in each studio has been designed using a “Star” grounding system tying back to a single grounding point. The grounding point is separated from building ground with a specification of <0.1V between neutral and ground, eliminating audio ground loop noise hum.

RECEIVING AND SHIPPING

Preservation Technologies and The MediaPreserve have a dedicated shipping and logistics department that is responsible for receipt and dispatch of 550,000 assets each year using a variety of methods including ground and air shipment, fine arts transport, and art courier services.

The MediaPreserve provides clients with locking, sealed containers and packing material to facilitate safe transport of assets. The shipping and logistics team can accept any size delivery, from a single secure tote to thousands of assets at one time. When the work is complete, all assets are returned separately from the derivative files.

Thanks to our careful logistics we can offer our clients fine arts coverage from the time the assets leave their facility until they are safely returned at the completion of the project.



CHECK-IN, TRACKING, AND CLEANING PROCEDURES

Once material is on-site, we track all items in *MediaKeeper*, our project and asset tracking system. *MediaKeeper* generates unique barcodes for assets, while also establishing the required file structures for asset file creation, storage and file workflow processes for the final deliverables. These barcode identifiers allow personnel to track and locate individual items through all points in the workflow. The barcodes are never affixed directly to the asset but instead are placed on the container that will hold the asset during its stay in The MediaPreserve.

MediaKeeper Screenshots

The top screenshot displays the 'Update/Save' form in the MediaKeeper system. It features a sidebar with buttons for 'Check-In', 'Notes', 'Processes', 'Tech Data', 'TechEval Report', 'TBC Settings', 'File List', and 'Main Menu'. The main form is organized into columns: 'Update/Save', 'Actual Value', 'Level 1 Selection', and 'Level 2 Selection'. Fields include Video Standards (NTSC 525), Video Asset Format (1" Type C:None), Language (English), Sound Field (Stereo:Ch1, Ch2), Noise Reduction (Yes:Dolby A), Timecode Frame Rate (29.97 NDF), Timecode Type (LTC), Timecode Location (Ch3), Studio xfer Method (Composite Video), RF Level (Normal), Drop-Out Activity (Low), Playback Comments, Sticky Shed (No), Head Clogging (No), Picture Quality (Good), Audio Quality (Good), and Special Handling options like Video Restoration, Audio Restoration, Cleaning, Baking, Tape Lubrication, Splice Repair, Cassette Repair, Reel Flange Repair, and Reel Replacement.

The bottom screenshot shows the 'Barcode Lookup' results for the barcode 'FRED2009010701-0250'. The results include a 'Program audio Dolby A decoded for transfer' and a list of timestamps and notes: '05:08:51:23 - small drop-out right center', '05:12:56:12 - TBC hit - caused by field to field transition error in the frame', and '05:23:05:17 - TBC hit'. The sidebar buttons are the same as in the top screenshot.

During the digitization process, each item's barcode is scanned into the *MediaKeeper* record, documenting the deck on which the tape or film is played back and the engineer who performs the work. Engineers can enter metadata about the transfer process directly into *MediaKeeper*, including information about format, stock brand, runtime, playback speed, physical condition, transfer notes, and more.

The software also tracks the engineer's time spent working on each asset, including ingest and special handling. All times and actions are recorded and included in client metadata.

Staff can search *MediaKeeper* by barcode, shipment number, or client profile, and filter the results by date range of work performed. Progress on any transfer work can be monitored by amount of time spent in any given date range.

When assets arrive at The MediaPreserve, we inspect each item for biological contamination and/or visible physical damage. We understand that materials may require varying degrees of cleaning and conservation. The MediaPreserve specializes in restoring and playing tape that has been deemed unplayable, and our studio engineers have many years of experience in repairing broken and damaged media. Whether cleaning or repairing assets by hand or using one of our various mechanical cleaning methods, we have many options to safely and effectively care for items in need of conservation. For material with unusual or pervasive issues, we assess and communicate with the client prior to undertaking any extensive cleaning or repair. The MediaPreserve is fully compliant with ISO standard 18933.2012.



Please refer to the 'Technical Infrastructure' sections that follow for a more complete outline of the transfer process and its related hardware, software and legacy equipment.

IT STORAGE INFRASTRUCTURE

All ingest workstations are equipped with a local 8TB RAID storage array. Upon creation, digital files receive an MD5 checksum; they are migrated to intermediate storage within 8 hours of initial ingest.

For intermediate storage, The MediaPreserve employs a Fiber Channel storage array (SAN) with a 900 TB capacity in a RAID5 configuration. For long term storage and backup, The MediaPreserve employs two robotic tape libraries: an IBM TS3100 library with two LTO8 drives, and a NEOS-T48 library featuring four LTO7 drives and capacity four 48 media cartridges, half of which are configured to provide LTFS structured LTO7 tapes.

The SAN, LTO libraries and LTO media are housed in a secure area only accessible to IT administrators.

The MediaPreserve's proprietary applications maintain an inventory of every file written to the SAN. These applications execute all file movements and generate an audit log of all file movements including target and source volumes. Automated checksum verifications ensure file integrity after each file move.

It is our policy to maintain backups of all deliverables until we receive confirmation that QC has been completed and all files meet client approval. We guarantee all files produced and any quality control issues discovered during client QC are corrected with no additional charge. Any files requiring re-work will be delivered within 30 days of receipt of notification.

AUDIO TECHNICAL INFRASTRUCTURE

INGEST AND TRANSFER OF ANALOG AUDIO ASSETS

Upon receipt of materials, the intake technician enters all assets into MediaKeeper, recording any notable defects and reporting them to engineers and project managers. The technician photographs each asset and its container to capture any existing metadata, also noting any abnormalities regarding the condition of the asset. Once all items are logged in our system, we report to the client any discrepancies between the material received and the packing inventory.



Following check-in, our audio engineers retrieve batches of tapes for digitization, moving the batches to the appropriate studio. The engineer scans each tape's barcode into the MediaKeeper record to document the deck on which the tape is played and the engineer performing the digitization. All actions and their durations are captured and included in client metadata. The item barcode retrieves the check-in inspection data and the client profile. The audio engineer removes the asset from its container and re-inspects it to determine the best handling and playback

method for that item. The engineer reports any concern, such as cleaning, baking or repairs, to the project manager so the client may be notified immediately; we seek client approval before taking any remediation action. If the client approves the remediation, tapes may be cleaned by hand or machine. All splices are checked for integrity or replaced. Leader is applied to the head and tail of each tape, if needed.

Each asset is loaded one at a time to be ingested. The engineer fully monitors the transfer and never leaves the original media unattended during playback. The engineer previews each item for approximately ten seconds to get a sense of the recording. Based on their preview, they adjust the speed and calibration of the machine to a reasonable operating level. All components of the signal chain are tested before playback. No sound processing elements are used in the transfer. The engineer uses Cube-Tec Quadriga software to monitor all audio signals throughout the transfer process. Simultaneously, they spot-check the audio content of each tape throughout the transfer, switching between audio inputs approximately every 30 seconds. The engineer documents any defects found in the recordings. This information is extracted from our system and written to the metadata spreadsheet. Following ingest, the tapes are returned to their containers, the barcodes are scanned, and the tapes are checked out of the studios and returned to the storage area.

Each original asset is transferred from head to tail capturing all substantive content (non-dead noise). If the program ends before the end of the media, the engineer checks the rest of the tape or reel for the presence of additional content to capture. If the remaining part of the media is blank, the engineer contains the end of the program followed by 10 seconds of additional tape playback.

The following list outlines the equipment, hardware and software utilized during the reformatting process for your audio formats.

AUDIO EQUIPMENT

Playback Hardware

- Open Reel: Studer A820; Studer A80; Studer A807
- Cassette: Tascam 122 MKIII
- DAT: Sony PCM 7030 and 7040
- Grooved Disc: Rek-o-Kut Rondine III (Styli: Rek-o-Kut Archival Elliptical Stylus Kit; Cartridge: Stanton 500AL)
- Technics SL 1210 mkII



Routing: Bittree

A-D Converter: Mytek 8x192 ADDA and Antelope Audio Orion 32

Capture Card: RME HDSP AES32 and RME HDSP Madi Audio Interface Card

Capture Software: Steinberg Nuendo 5.5 and Cubase 9.5 Pro

Temporary Storage: Local Raid 0 storage using Dell Precision T7500 computers

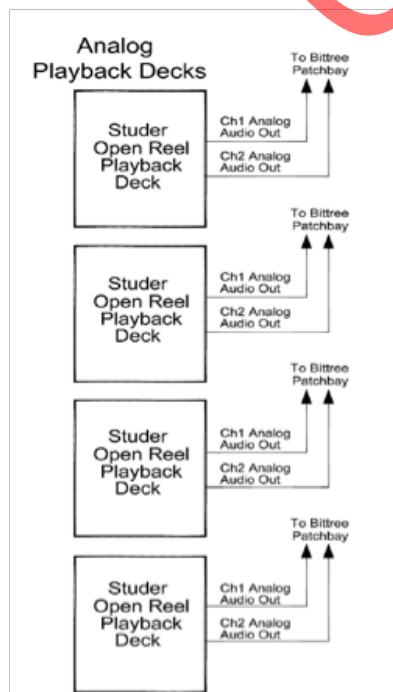
Long-term Storage: Fiber Channel storage array (SAN) (900 TB capacity, RAID5 configuration)

Quality Control: Cube-Tec Dobbin – Automated QC software (quality control by staff)

Transcoder: Steinberg Wavelab 7 (creating derivative files)

File Verification Software: Media Info

OPEN REEL FORMAT AUDIO SIGNAL PATH DIAGRAM



AUDIO CASSETTE SIGNAL PATH DIAGRAM



AUDIO SIGNAL CHAIN EQUIPMENT

We have a range of hardware and software available:

Analog to Digital Conversion

- Mytek 8x192 ADDA
- Antelope Orion 32 ADDA

Computer Interface

- RME Hammerfall DSP AES-32
- RME Hammerfall DSP Madi

Software

- Steinberg Nuendo 5.5
- Steinberg Wavelab 7
- Cube-Tec Quadriga
- Cube-Tec Dobbin
- Avid Pro Tools
- FastSum
- Steinberg Cubase 9.5 Pro
- Izotope RX 4

Range of Audio Media

- Open reel analog tape – ¼", ½", 1", 2" in varying track alignments (¼ track, ½ track, full track, 2 track, 4 track, 8 track, 16 track, 24 track) on reels as small as 2.5" and speeds from 15/16 ips to 30 ips.
- Grooved disc recordings – varying speeds including 33, 45, 78 RPM; disc sizes ranging from 6" or smaller to 16" in diameter.
- Dictabelt
- Magnabelt
- Wire recordings
- Compact cassette
- Micro cassette
- Mini cassette
- 8-track cassette
- 1630 digital audio
- F1 digital audio
- MiniDisc
- DAT
- 1" 32 track Mitsubishi digital open reel (X850)
- ½" DASH 48 Channel and 24 Channel

This represents only a portion of The MediaPreserve's overall capabilities.

Digitization Equipment

- Mytek 8x192 ADDA Analog to Digital/Digital to Analog Converters
 - 8 channels each
 - Sample rate up to 192kHz
 - 24 bit
 - 2 units in each studio provide up to 16 simultaneous channels of 24/192 conversion
- Antelope Audio Orion 32
 - 1 unit that produces up to 32 simultaneous channels of 24/192 conversion
 - Sample rate up to 192 kHz
 - 24 bit
- RME HDSP AES32 Audio Interface Cards
 - 16 channels of AES interface each
 - Support of sample rate up to 192kHz
 - 2 cards installed per computer offers up to 32 channels of simultaneous digital ingest
- Packages including:
 - Steinberg Nuendo 5.5 (Ingest/Post Processing)
 - Steinberg Wavelab 7 (Ingest/Post Processing)

- Cube-Tec Quadriga (Ingest)
- Cube-Tec Dobbin (Batch Processing/Post Processing)
- Cube-Tec Restoration Plug-ins (de-buzz, de-click, de-crackle, spectral de-hiss, de-noise)
- Waves Restoration Bundle
- Izotope RX 4
- Cubase 9.5 Pro

Analog Routing—Monitoring—Noise Reduction Decoding

- Audio Patchbay by Bittree
- Monitoring on Genelec 1031a studio reference monitors
- Various noise reduction units on hand for decoding including:
 - Dolby 363 (SR, A)
 - Dolby 422 (S, B, C)
 - Dolby 330 (B)
 - Dolby MT Rack- 24 Channels of Dolby A and SR
 - dbx 150 (type I)
 - dbx 222 (type II)
 - dbx 224 (type II)
 - dbx 224X-DS (type II)

Analog Playback Machines

- Open reel playback via Studer decks (A807, A810, A-80, A820)
- Compact cassette playback via Tascam (122mkIII) decks
- Disc recording playback on Vestax BDT-2600, Technics SL1210 MK II,
- Rek-o-kut Rondine III
- Wide Groove 78RPM – 3.8mil truncated elliptical
- Pre-1935 Lateral Cut 78RPM – 3.3mil truncated elliptical
- Late 1930s Lateral 78RPM – 2.8 mil truncated elliptical
- 1940s+ Transcription Discs – 2.3mil truncated elliptical
- Standard Groove 78RPM – 3.0mil truncated elliptical
- Narrow Groove 78RPM – 2.4mil truncated elliptical
- Aluminum – 6.0mil conical stylus

Restoration and Conservation

- Tapes suffering from sticky shed syndrome are baked (with client approval) in a VWR 1680-3 scientific oven accurate to .01 degree. Tapes with mold are first cleaned in an isolated fume hood, and then baked in a separate isolated Thermo Scientific Heratherm OGH180 oven, if needed.
- Tapes suffering from soft binder syndrome are played back in a room outfitted with temperature controls to maintain an environment at low temperatures, allowing playback without squeal.

- Tape cleaning is accomplished by hand using Pellon wipes or with the use of modified mechanical cleaning machines.
- Patented frictionless analog tape heads provide the ability to preview sticky tapes without the need for baking.
- Extra tape flanges are available for dealing with “pancakes.”
- Expertise in re-shelling/housing compact cassette tape into new C-0 cassette shells. New hubs/leader can also be spliced onto compact cassette tape if necessary.
- Disc recordings are cleaned before playback using Disc Doctor Miracle Cleaner, Disc Doctor brushes and a Keith Monks Record Cleaner, and rinsed with distilled water and Disc Doctor brushes. Discs are then patted dry with lint-free cloth and allowed to air dry. Throughout the process, care is taken to ensure that the center label remains dry. Engineers always wear gloves when handling disc recordings.
- Cracked or moderately damaged discs (i.e. minor delamination) are transferred using a KAB Transcriber II (modified Vestax BDT-2600 with 16” platter and various styli). Post-processing is typically necessary to reduce “thumping and crackling” associated with these issues.
- Audio engineers on staff have experience in transferring over 50,000 vintage recordings, many of which required cleaning, repair or restoration.

CARE AND UPKEEP OF EQUIPMENT

Audio Maintenance and Calibration

- All analog audio signal paths are checked and adjusted according to the measurement results of our calibrated certified Sound Technology 1510A Generator/Analyzer.
- All machines are calibrated to standard house reference of 0VU @ +4dBm.
- All tape machines are verified to perform to minimum frequency response of 20Hz – 20kHz +/- 0.5dB.
- Digital Conversion is handled by Mytek 8X192ADDA Converters providing:
 - Dynamic Range – 120dB (A Weighted)
 - THD+Noise – 106dB (<0.0004%)
 - Internal Jitter – <10picoseconds
- These converters provide master clock to the rest of the studio
- Tape paths are demagnetized daily with Han-D-Mag Demagnetizer.
- Tape path heads, guides, and rollers are cleaned using American Recorder head cleaner prior to playback. Pinch rollers are cleaned using American Recorder Pinch Roller Fluid.

Playback Maintenance and Calibration

- Magnetic viewers are used prior to playback to ensure proper track alignment and head block selection, including:
 - ¼” Quarter Track stereo and mono
 - ¼” Half Track stereo and mono
 - ¼” Full Track mono
 - ½” Four Track
 - ½” Two Track

- ½" Eight Track
- 1" Eight Track
- Open reel reproducers are calibrated for playback level and equalization using the following tones from Magnetic Reference Library (MRL) tapes:
 - White Noise
 - 1kHz
 - 10kHz
 - 16kHz
 - 50Hz
 - 100Hz
 - 20Hz-20kHz Sweep
- Azimuth is set for every recording manually by an engineer using headphone and Lissajous scope found on the Wohler B-AM-2B Audio Phase and Scope Meter.
- Grooved disc media is ensured proper playback equalization using a KAB Souvenir EQS MK12 Chronologic Disc Remastering Preamplifier, with the ability to decode:
 - AC, AE, E3, E5, E7, CO, NAB, LP.AES.RIAA equalizations
 - Stereo and Mono discs
 - Lateral and Vertical Cuttings
- Various onboard and outboard noise reduction units are available for the decoding of:
 - dbx type I
 - dbx type II
 - Dolby A
 - Dolby B
 - Dolby C
 - Dolby S
 - Dolby SR

Audio Cabling

- All analog and digital audio signal paths use GEPCO cables with NEUTRIK gold tip 3 pin XLR connectors and DB25 connectors.
- 110ohm Termination is used when necessary for digital AES paths.

Protecting the Client's Tape

- Each machine is critically aligned for proper tape tensions and playback path.
- Precision tools are used to properly align the pinch roller while engaging the capstan to prevent damage to the tape on start.
- The engineer periodically vacuums the inside of each playback machine to remove any stray tape oxide pieces from getting into the tape path and causing damage.
- All machines have on-line UPS (uninterruptible power supply) units to mitigate power loss from electrical outages caused by a storm or other electrical disturbance.

- Before playing back the client's tape, the engineer fast forwards to the end and rewinds the tape on the machine will play it. This gives the tape pack the tension of that machine and provides for smoother tape path travel during the playback.

COPY

VIDEO TECHNICAL INFRASTRUCTURE

INGEST AND TRANSFER OF ANALOG VIDEO ASSETS

Upon receipt of materials, the intake technician enters all assets into *MediaKeeper*, recording any notable defects and reporting them to engineers and project managers. Asset inspections are fully compliant with ISO standard 18933.2012. The technician photographs each asset and its container to capture any existing metadata. Once all items are logged in our system, we report to the client any discrepancies between the material received and the shipment inventory.



Following check-in and photography, our video engineers move batches of tapes to the appropriate studio. The video engineer removes the asset from its container and scans its barcode to pull up the inspection data and the client profile. The engineer then performs a complete reinspection of the object to evaluate it for the optimal handling and playback method. Any serious issues are reported to the project manager so that the client can be notified. All remediation is approved by the client before any action is taken. If approved, tapes may be cleaned by hand or machine before playback. Some of the remediation services we offer include:

- Tapes exhibiting sticky shed syndrome are baked in a VWR 1680-3 scientific oven accurate to .01 degrees. Tapes exhibiting mold are baked in a separate isolated Thermo Scientific Heratherm OGH180 oven.
- Tape cleaning is accomplished by using professionally modified machines, with tape lubrication capability if required. Tapes that have mold are cleaned in the mold remediation room.
- Expertise in re-shelling/re-housing damaged cassette formats in new cassette shells. New hubs and leader can be added if necessary.
- At the client's request, audio tracks can be sent to our audio studios for post-processing to reduce hum and other noise.
- Video engineers on staff have experience in transferring thousands of vintage recordings, many of which required cleaning, repair or restoration.

DIGITIZATION

Following check-in, our video engineers retrieve batches of tapes for digitization, moving them to the appropriate studio. Engineers scan both the item's and the deck's barcode into *MediaKeeper* to document the deck on which the tape is played and the engineer who performs the work. All actions and runtimes are included in client metadata.

The engineer selects the appropriate video deck for playback for each item. They load each tape onto the playback machine and preview the first 30 seconds before calibrating audio and video levels, using a Tektronix 1720 Vectorscope and a Tektronix 1730 Waveform Monitor. The ingest of each tape is fully monitored to guarantee the highest capture quality and safe, non-damaging movement through the tape transport.

We use high quality codecs that output a wide variety of container formats to suit clients' needs and provide user flexibility. Our various capture cards are installed on both Mac and PC operating systems. Both platforms connect to the SAN network over a fiber optic network.

During the ingest/reformatting process, the engineer documents any defects identified in the recordings. This information is extracted from our system and written to the metadata spreadsheet. After ingest the tapes are returned to their containers, the barcodes are scanned, and the tapes are checked out of the studios and returned to the secure storage area.

The following list and accompanying diagrams outline the equipment, hardware and software utilized during the reformatting process.

VIDEO EQUIPMENT

Supported Hardware for Playback

- VHS: Panasonic AG-7750; Panasonic AG-1980
- U-matic: Sony BVU-950; Sony VO-9850
- Digi-Beta/Betacam SP: Sony DVW-A500
- MiniDV/DVCAM: Sony DSR-45; Sony HVR-M35U; Sony HVR-M25U
- 1" Type C: Sony BVH2180; Sony BVH2500; Sony BVH2000; Sony BVH2800; Ampex VPR-6; Ampex VPR-80

Time Base Corrector: Leitch DPS 575 and 475 and X75

Routing: BlackMagic Video Hub 40x40 SDI, embedded Audio, RS422

A-D Converter: Leitch DPS 575 and 475 and X75

Capture Card: Digital Rapids DRC-2200

Temporary Storage: Local Raid 0 storage using Dell Precision T7500 computers

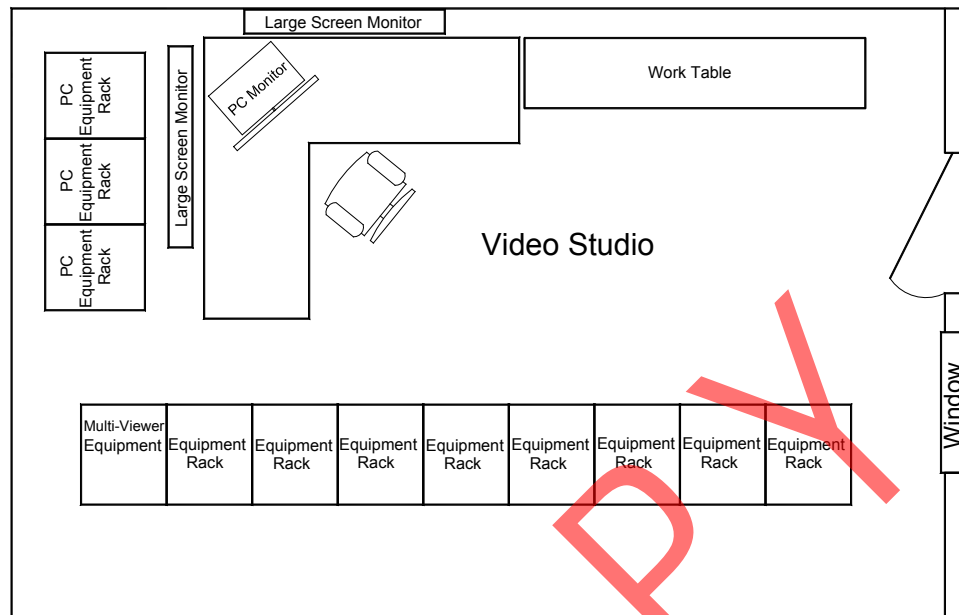
Long-term Storage: Fiber Channel storage array (SAN) (600 TB capacity, RAID5 configuration)

Quality Control: Digimetrics Aurora Pro – Automated File QC software (quality control by staff)

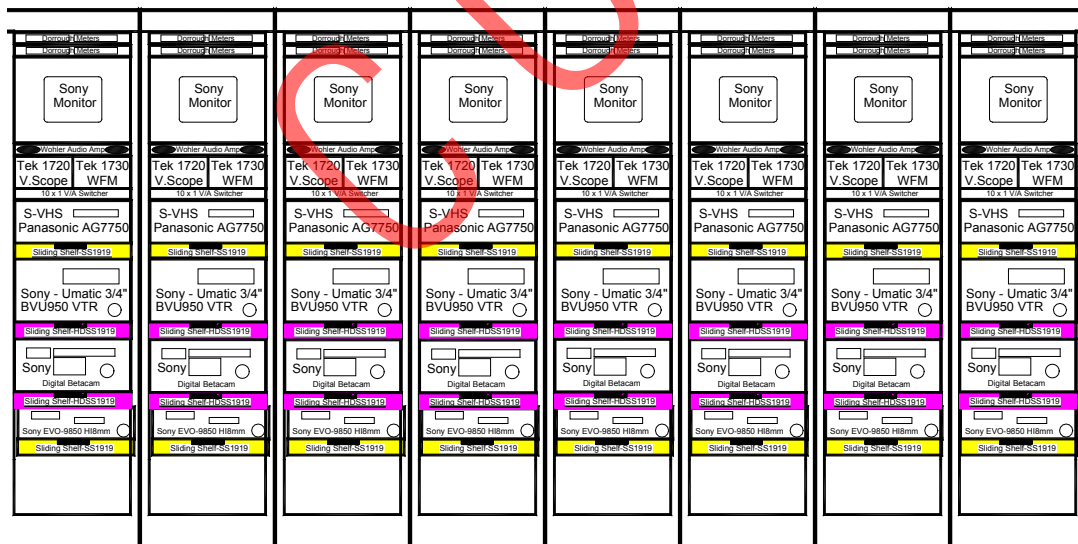
Transcoder: Telestream Vantage (creating derivative files)

File Verification Software: MedialInfo

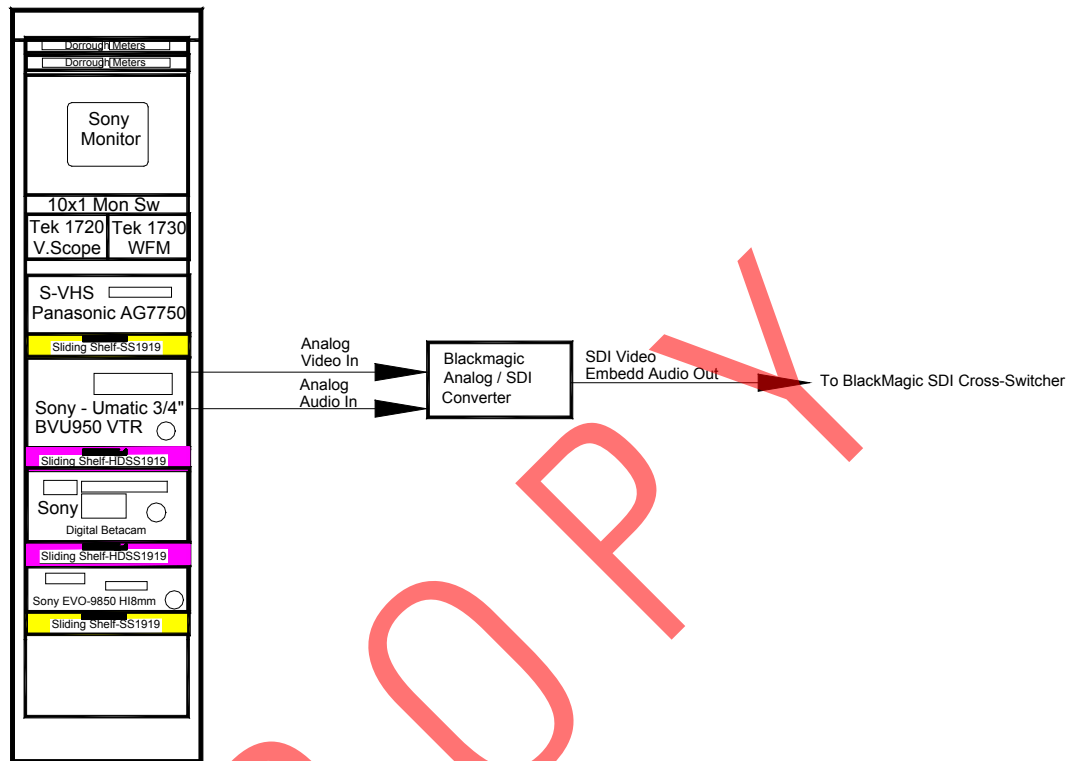
MULTIPLE INGEST VIDEO STUDIO AND RACK DIAGRAM



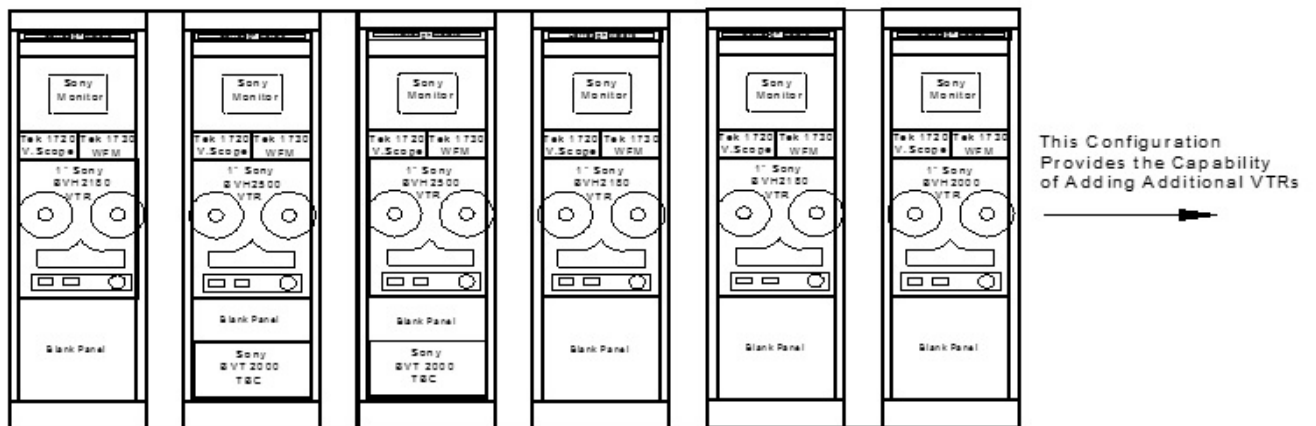
EQUIPMENT RACKS



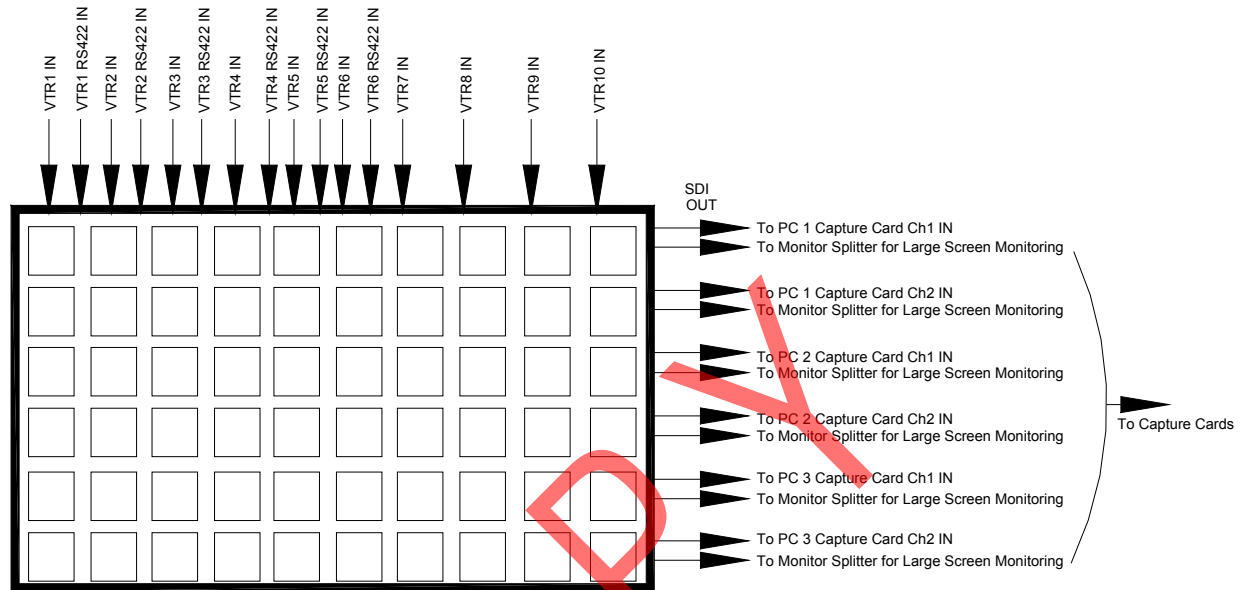
VIDEO SIGNAL PATH DIAGRAM



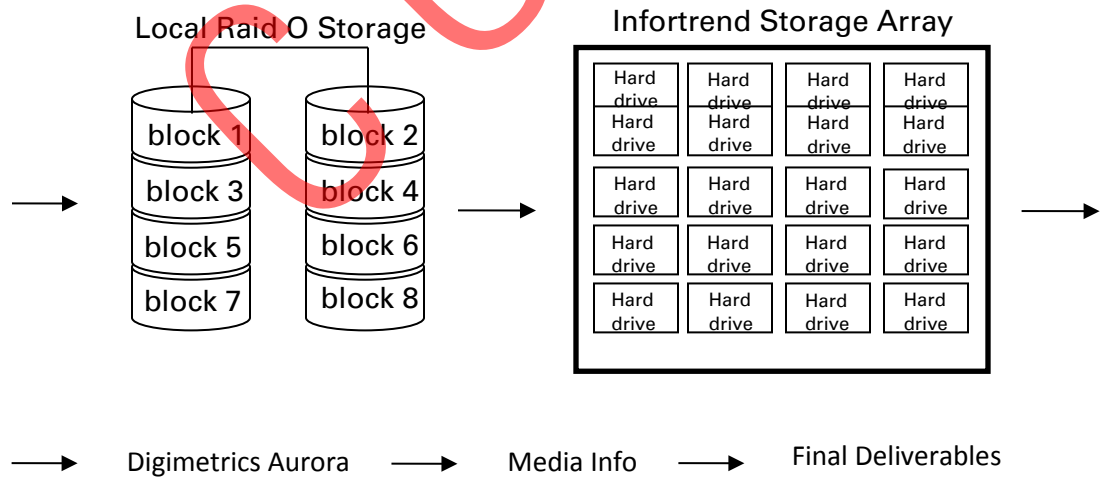
1" Type C Reel to Reel VTR Multi-Ingest Configuration



Black Magic 40x40 SDI Cross-Point Router



DIGITAL STORAGE AND DELIVERABLE CREATION



TECHNICAL CAPABILITIES

The MediaPreserve is also equipped to run the following hardware and software:

Capture Cards: (PC or Mac)

- Digital Rapids DRC-2200
- AJA Kona
- Bluefish444
- Blackmagic Extreme SD/HD

Time Base Correctors

- Digital DPS-290 TBC/Frame Synchronizer
- MicroTime S-230 TBC/Frame Synchronizer
- Sony BVX30 TBC/Frame Synchronizer
- Sony BVT-2000 TBC

Software

- Imagine Communications SelenioFlex Ingest
- Telestream Vantage
- Final Cut Pro
- Avid Media Composer
- Adobe Premiere
- FFmpeg
- CatDV Live Capture Plus
- MF Digital RipStation MediaGrabber
- MPEG Streamclip

Signal Conversion

- AJA FSI SD/HD
- AJA SD Converters

Computer Hardware

- Dell Quad Core PC Workstations
- Mac Pro Workstations
- Fiber Channel Storage array

Restoration and Conservation

- Tapes exhibiting sticky shed syndrome are baked (with client approval) in a VWR 1680-3 scientific oven accurate to .01 degrees. Tapes exhibiting mold are baked in a separate isolated Thermo Scientific Heratherm OGH180 oven.
- Tape cleaning is accomplished by using professionally modified machines, with tape lubrication capability if required. Tapes exhibiting mold are cleaned in the mold remediation room; these typically require hand cleaning.
- Expertise in re-shelling/re-housing damaged cassette formats in new V-0 cassette shells. New hubs or leader can be added if necessary.
- At the request of the client, audio tracks can be sent to our audio studios for post-processing to reduce hum and other noise.
- Video engineers on staff have experience in transferring thousands of vintage recordings, many of which required cleaning, repair or restoration.

CARE AND UPKEEP OF EQUIPMENT, VIDEO ADJUSTMENT AND PERFORMANCE MEASUREMENT

All adjustments and measurements of performance are made using scopes, waveform monitors, and video/audio analyzers. These machines are calibrated annually and issued a calibration certificate by the outside calibration firm.

Signal Paths

All signal paths, both analog and SDI (SMPTE 259M), are checked monthly using the following equipment:

- Video Generator – Tektronix 1910 Digital Generator, calibration certified, using SMPTE 525 NTCS test signals such as full-field colorbars, ultiburst, FCC Composite (2T, 20T, etc.), Staircase, Modulated Ramp and many more test signals at various levels.
- Video Analyzers – Tektronix VM700A (with audio option plug-in), certified Tektronix waveform and vectorscopes.
- Tektronix 601 WFM's for monitoring the 259M SDI signal paths.
- All SDI converters use 12-bit sampling, and 10-bit processing.
- Audio Generator / Analyzer – certified Sound Technology 1510A. Same audio generator/analyzer used in the audio studios for signal path performance integrity.
- Wohler Technologies B-AM-3B Audio phase scope and meters.
- Dorrough 40-A level meters.

Video Signal Path Distribution is checked for:

- Unity Gain 1v p-p signal levels – using color bars.
- Chroma level – using color bars and 20T pulse.
- Differential phase differential gain – using the Tek 1910 FCC Composite (2T, 20T & etc) generated signal at the beginning of the signal path and monitoring the results at the end of the signal path with a Tek VM700A and Tek WFM and Vectorscope. The differential gain and phase at (10 – 90% APL) should be approx. <0.20%.
- Line tilt/field tilt – approx. <0.20% using DC coupling.
- Frequency response – all analog Leitch distribution amplifiers are adjusted to pass a 0.05 to 6 MHz frequency bandwidth. The Tek 1910 Generator's Multiburst signal amplifiers are checked and adjusted while monitoring the Tek VTM700A and a Tek WFM (waveform monitor). Adjustments are made to the frequency response based on the measurement results of the Tek VM700A. Note: all equalization for optimum machine output results are adjusted on the machine or external TBC. There are no other video equalizers in the signal path between the machines and capture cards so non-linearity and VSWR ring can be kept at minimum.
- Linearity – Using a stair case and modulated ramp signal at the beginning of each signal path, the results are displayed on our Tek VM700A and Tek WFM's. Adjustments to the signal path are made according to the measurement results.
- Noise Measurements – Blackburst is generated from the Tek 1910 Generator and passed through each video signal path. Note: An electrical distribution "Star Grounding System," 3rd and 5th harmonic filters and MOV surge protection on the main electrical panel are used throughout the MediaPreserve facility to reduce potential electrical noise and ground loops. The results are measured on our Tek VTM 700A.
- S/N should measure approx. > -70dB

- Hum < 1mVp-p
- Propagation Delay 15+/- 1.0 ns

Video Cabling: (75Ω Coax)

- All analog signal paths use Belden 8281 double shielded coaxial cable.
- All SDI signal paths use Belden 1694A coaxial cable.
- King BNC gold tip connectors are used on all coaxial cables.

House Video Reference Signal

- A Grassvalley sync generator along with a backup generator is used to generate a stable VBS signal to most machines for reference or genlock purposes.

Audio Path

- We use both analog and SDI 259M embedded audio signal paths.
- All stereo analog audio signal paths are checked and adjusted according to the measurement results of our calibrated certified Sound Technology 1510A Generator/Analyzer. The generator output is connected to the input of the analog audio signal path. The analyzer is connected to the end of the analog audio signal path.
- Where necessary Leitch Audio Distribution amplifiers are used.

Analog Signal Paths are checked for:

- House analog signal path levels (0VU @+4dbm).
- Audio frequency response 20Hz – 20kHz +/- 0.5dB.
- Common mode rejection >60dB @ 20kHz.
- S/N >100dB 20Hz – 20kHz relative to +4dBm weighted.
- THD (Total Harmonic Distortion) <0.02% at 1kHz +4dBm.
- Dorrough 40-A level meters are used to monitor machine analog audio outputs to the capture cards during the ingest process.
- Audio phase is measured and monitored during the digital ingest process using a Wohler Technologies B-AM-3B audio phase scope and meters.
- SDI embedded audio phase is monitored on a Large Screen JVC monitor driven by an Evertz Multiple screen splitter.

Audio Cabling

- All analog audio signal paths use GEPCO cable with NEUTRIK gold tip 3 pin XLR connectors.

VTR Machine Alignment and Maintenance

There are many video formats uses in The MediaPreserve facility. We have secured many manufactured video/audio alignment tapes for starting reference points for maintenance alignment.

- Analog VTR tape paths and video heads are cleaned after every tape pass.
- Tape paths and video heads are degaussed weekly or when excessive noise is noted after thorough head and tape path cleaning.

- The video heads of digital VTRs are extremely sensitive and are equipped with automatic self-cleaners to avoid manual cleaning. If the auto cleaning process is insufficient, we use a specially manufactured cleaning cassette.
- Most professional VTRs feature integrated time-base correctors (TBCs) that allow the operator to align for best picture performance. For ½" EIAJ tapes so we use external TBCs to stabilize the picture before the signal is digitized.

Protecting the Client's Tape

- Each machine is critically aligned for proper tape tension and correct entrance and exit alignment around the head scan drum.
- The engineer periodically vacuums the inside of each machine to prevent any stray tape oxide pieces from previous tapes entering the tape path and causing damage.
- All machines except the 2" Quad VTRs are connected to uninterruptible power supply (UPS) units to protect against electrical failure in the event of an electrical surge or other power disturbance.
- Before playback the engineer fast forwards the tape to the end and rewinds it on the machine to be used in the transfer. This allows the tape to pack to the tensions of the machine and provides smoother tape travel during playback.

FILM TECHNICAL INFRASTRUCTURE

INGEST AND TRANSFER OF FILM ASSETS

Upon receipt of materials, our intake technicians enter all assets into *MediaKeeper*, our in-house tracking system. The technician performs a preliminary inspection of each film, identifying symptoms of vinegar syndrome and/or biological contamination (mold). Any notable defects are recorded in *MediaKeeper* and reported to the engineers and project managers. The technician photographs the assets to document condition and capture any physical metadata for each film entering The MediaPreserve. After check-in, assets are moved into our film studio.

Before transfer, an engineer carefully hand-winds through each film at the inspection bench. The engineer attaches leader, reinforces splices, and repairs existing damage as needed for optimal playback. After repairs, the film is cleaned using a Lipsner-Smith CF2800 ultrasonic cleaner, which employs environment-and-human-safe 3M Novec HFE 7200 as its cleaning chemistry. If the film is brittle or otherwise delicate, it is cleaned by hand on the rewind bench using the same HFE 7200 chemistry. For more focused spot-cleaning, we select from several solvents that are applied minimally. In the event a film requires extensive remediation before digitization, we communicate the suggested treatment plan to the client and obtain client approval before proceeding.

If a film needs repair, our experienced film engineers perform the minimal amount of intervention required for playback, in order to avoid extensive handling. All repairs are made by hand using archival equipment and materials, working on a hand-wind bench with split reels. The film is wound onto new polypropylene cores and, if necessary, re-canned in preservation-quality vented film cans. All enclosures meet the requirements in the American National Standards Institute (ANSI) Standard IT9.2-1991 and pass the ANSI Photographic Activity Test (PAT). Films can also be returned to their original reels at the client's request.



DIGITIZATION



Based on the film type and gauge and the desired file output, our engineers select the scanner that best suits the client's reels. We can scan all film gauges from 8mm to 35mm on any stock, with 8mm and 16mm representing the majority of our transfers. Our engineers have extensive knowledge and experience with these formats, enabling them to successfully transfer films with severe condition issues, including shrinkage and emulsion lift.

All films are loaded by an engineer and fully monitored during transfer. During the reformatting process, the engineer monitors and documents any defects found in the

film. Those notes are maintained in our MediaKeeper database and later extracted for the client's metadata.

Some color film stock is well known to show degradation in the dye layers, resulting in color shifts. Our film experts can correct color shift and fading; following archival best practices, we will only make slight adjustments to preserve the informational content and overall character of the film. The MediaPreserve digitizes all varieties of black and white and color film, including:

- All standard gauges including Super8, regular 8mm, 16mm, and 35mm, including A+B rolls and composite magnetic or optical film
- Less common gauges such as 9.5mm, 17.5mm, and 28mm. Other non-standard gauges and odd formats may be accommodated
- Nitrate stock
- Separate magnetic and optical soundtracks
- Standard definition, HD, 2K, 3K, and 4K resolution scans

FILM SCANNERS

Lasergraphics ScanStation

- Up to 4K scans
- 8mm through 35mm film gauges
- Sprocketless transport
- Variable speed scanning
- 300TB local RAID storage

Blackmagic Design Cintel

- 16mm, Super16, 35mm
- Thunderbolt capture
- Variable speed scanning

Kinetta Archival Scanner

- Up to 3K resolution
- Sprocketless transport

TECHNICAL SPECIFICATIONS

Digital Files

The MediaPreserve can create a wide array of digital files from film. Some commonly requested file types include:

- 10 or 8-bit uncompressed MOV or AVI
- DPX (Digital Picture Exchange)
- FFV1 in a Matroska or AVI Wrapper
- JPEG2000 / MXF
- XDCAM HD
- Apple Pro Res 422 HQ and any other Pro Res Derivative (SD or HD)
- DV25, DV50 (SD) or DVCProHD (HD)
- MPEG2 (SD)
- H264 / MPEG4 (SD or HD)

Software

- Blackmagic DaVinci Resolve
- Final Cut Pro
- FFmpeg
- MedialInfo
- Avid Media Composer
- Adobe PremierePro
- AEO-Light
- Imagine Communications SelenioFlex Ingest
- Telestream Vantage

CARE AND UPKEEP OF EQUIPMENT

Monitors

- Monitors for the film scanners are calibrated regularly with equipment such as the Minolta Display Color Analyzer and the XRITE i1 Display Pro.

Film Transport

- Check machine film path servo tensions.
- Regularly clean film path including all rollers, particle-transfer rollers, gate, lens, and sound heads.

Power Conditioning

- Our transfer studios are protected with a “Star Grounding System,” using 3rd and 5th harmonic filters and MOV surge protection on the main electrical panel to reduce potential electrical noise and ground loops from entering the signal path.
- The film studio is equipped with an anti-static floor covering that is grounded to the main ground in the electrical panel to eliminate electrical static discharge that could potentially damage electronic components and introduce noise and digital artifacts into the picture and audio.
- An uninterruptible power supply (UPS) unit protects all machines from electrical outages caused by a storm or some outside electrical power disturbance. This eliminates the possibility of film damage due to a loss of film path tensions stretching or breaking the film.

METADATA

Each asset, when it arrives at The MediaPreserve, is entered into *MediaKeeper*, our system that facilitates tracking physical media, automating file directory structure, and generating technical metadata. Using information captured during the digitization process, *MediaKeeper* generates XML metadata for each file. We capture and provide technical, structural and administrative metadata including checksums. We can also include client-provided descriptive metadata in the final XML output.

Our internally developed metadata schema is based on audiovisual preservation best practices and national and international standards such as WC3, ISO, and AES. Our metadata team can also build custom XSLT crosswalks for a variety of popular metadata schemas, including PBCore, METs, and DublinCore.

FIELDS IN OUR STANDARD XML METADATA

Original	
Title	
Markings	AudioQuality
RecordDate	SoundFieldLevel1
RunningTime	SoundFieldLevel2
FormatType	StudioTransferMethod
StockBrand	SpecialHandling
SourceDeckType	TimeCode
SourceDeckManufacturer	PictureQuality
SourceDeckModel	AudioQuality
SourceDeckSerialNumber	ClosedCaptions
VideoStandard	RFLevel
TransferComments	ReelSize
VideoCorrectionDevice Type	Originator
VideoCorrectionDeviceManufacturer	OriginatorAddress
VideoCorrectionDeviceModelName	NoiseReductionLevel1
VideoCorrectionDeviceModelVersion	NoiseReductionLevel2
VideoCorrectionDeviceModelSerialNumber	SpecialHandling
VisualInspection	
DropOutActivity	

Preservation Master/Mezzanine Copy/Streaming File

FileType (preservation, edit or streaming)	VideoBitDepth
FileName	RunningTime
DateCreated	VideoCodec
FileSize	AudioBitRate
FileSizeUnit	ScanType
AudioCodec	AudioCodec
VideoSignalType	AudioSchema
FileFormatWrapper	AudioBitDepth
ColorSampling	AudioChannels
FrameRate	FrameRateUnit
FrameCount	AudioSampleRate
FrameSizeHorizontal	AudioSampleRateUnit
FrameSizeVertical	ChecksumType
AspectRatio	ChecksumValue
DataRateUnit	ChecksumDateCreated
DataRate	VideoCaptureDeviceType
VideoCaptureDeviceManufacturer	VideoCaptureDeviceModelSerialNumber
VideoCaptureDeviceModelVersion	VideoCaptureDeviceModelName
VideoCaptureDeviceDriver	EncodeSoftware
VideoCaptureDeviceDriverVersion	ComputerManufacturer
EncodeSoftwareManufacturer	HostComputerVersion
EncodeSoftwareVersion	OperatingSystem
HostComputerName	
HostComputerBuild	

BEXT Headers

In addition, we provide embedded metadata in all <BEXT> headers of WAV files at no extra cost. Our BEXT headers include all fields strongly recommended in the FADGI guidelines, *Embedding Metadata in Digital Audio Files*.

- ORIGINATOR
- ORIGINATOR REFERENCE
- DESCRIPTION
- ORIGINATION DATE
- VERSION
- UMID
- RESERVED

We can also include the following FADGI recommended and optional elements:

- ORIGINATION TIME
- TIME REFERENCE
- BEXT VERSION
- CODING HISTORY

QUALITY CONTROL

Quality control begins before we undertake digitization. Initial QC begins with regular hardware and software validation to ensure quality and accuracy for successful and safe playback and digitization. Our IT department monitors all digitization, transcoding, and quality control software for performance and compatibility. Our playback machines are maintained in optimal condition.

Once originals have undergone a thorough physical inspection, each asset is monitored throughout the transfer process. The engineer takes careful notes during ingest, documenting any damage or errors inherent to the program. Those notes are later integrated into the client's metadata.

Our audio studios are equipped with **Cube-Tec Quadriga** software. This software provides real time audio analysis and error logging, flagging aberrations or defects in a recording. The software also generates a per-second report, which our engineers can use to review the files. After digital files have been created, the initial transfer engineer will spot-check each file at 30-second intervals.



EXAMPLES OF THE QC FUNCTIONS MONITORED BY QUADRIGA

- Digital Zero
- Clips or Clipping
- Modulation and Breaks
- Signal-to-Noise Ratio
- Pops/Clicks/Hiss/Buzz
- Hum
- Distortion
- Azimuth/Phase Problems

For video files, upon completion of ingest, all uncompressed preservation master files are spot-checked at 30-second intervals and are run through the automated **Digimetrics Aurora** quality control software tool for quality and accuracy. Digimetrics first developed Aurora in 2008 to answer the call for QC analysis for digital files in the broadcast and media sector. We have worked closely with Digimetrics since 2011 to help build and develop an efficient and automated QC tool that delivers dependable results. We run Digimetrics Aurora on its own server with a NVIDIA Tesla C2050 Processor for high speed performance. Aurora monitors more than seventy-five syntax and algorithm audio and video tests.

Our QC department reviews the Quadriga reports. If the reports indicate a significant anomaly, one of our QC technicians examines the digital file closely for any analog or digital artifacts. If an artifact or error is discovered the QC technician informs and consults with the engineers. The engineers reexamine the asset and, based on their findings, will determine if it needs to be re-ingested.

Once each master file passes both automated and human-performed QC, the derivative files are transcoded. Completed derivatives are inspected through one-minute playback at the beginning, middle, and end of each file (3 minutes total). They are also reviewed through MediaInfo and compared against the master file. If a digital anomaly is found, then the derivatives are re-transcoded.

After all digital files pass through QC, they are renamed and organized into the correct directory structure through an automated utility. The QC technician reviews the finished files to confirm that filenames, directory

structure, and other markings are correct. The files are then written to an external hard drive for delivery. One more pass of QC confirms that all files open and play properly, meet file format requirements, and are not flawed by noise, distortion, or digital errors.

An MD5 checksum is generated every time a file is moved to a new location to ensure the integrity of our clients' deliverables. Those checksums are re-verified after every transfer of location and are included on the drives as part of our metadata package.

The MediaPreserve guarantees the quality and accuracy of all digital files we create. Should a client find any problems or inconsistencies with any of our files, The MediaPreserve will correct and replace the files at no additional cost within 30 days of receiving QC documentation from the client.

FILE DIRECTORY AND HARD DISK DRIVES

The MediaPreserve ships all digital files according to the client's file directory structure requirements on returnable hard drives. We provide delivery in batches for many clients, and each batch shipment includes a complete inventory of files. Drives are delivered following a schedule determined by the project manager.

We customarily ship original assets ten days after the customer has received their deliverable files. To ensure the safety of original assets, it is our practice to use a shipping method that guarantees delivery within two days. We have a dedicated shipping department that handles all asset delivery, and because of their dedicated logistics work we can offer our clients fine arts coverage from the time the assets leave their facility until they are safely returned.

DELIVERABLE MEDIA OPTIONS

- Thunderbolt/USB 3.0/USB 2.0 external hard-drive
- Linear Tape Open: LTO-6, LTO-7
- RAID 5 storage array
- DVD-R, CD-R
- FTP (File Transfer Protocol) or cloud-based file transfer service
- Any other media format requested by the client

COMPANY HISTORY

PRESERVATION TECHNOLOGIES

In the 1960s the Library of Congress (LC) identified a serious preservation concern in the library and archives world: the deterioration of printed material due to acids inherent in industrialized paper composition. Determined to find a solution, LC launched a robust research agenda in the science of paper preservation, becoming the world leaders in the field.

By the late 1970s and early 1980s, LC preservation administrators had settled on using diethylzinc as a potential treatment for deacidification. They partnered with Texas Alkyls, and later with parent company AKZO Chemical, to develop a pilot plant in Houston, Texas. Parallel to this development, Union Carbide purchased the Wei T'o system developed by Richard Smith, and the FMC Corporation developed the Lithco process. With three major corporations testing out different deacidification processes, LC ran pilot tests with all three companies, and found each one unsuitable for their collections for various reasons.

While LC was performing preliminary testing, the Koppers Corporation of Pittsburgh worked with the University of California, Berkeley to develop a non-aqueous magnesium oxide suspension system that received its first patents in the mid-1980s. The process, Bookkeeper, was licensed by Richard Spatz, a retired Koppers executive. When the three large corporations failed to meet the Library's specifications, the then-head of the LC's Preservation Research and Testing Division approached Mr. Spatz and performed a small test using his process. He found that the Bookkeeper process held great promise. With strong encouragement from LC, Mr. Spatz and his partner, Mr. Randall Russell, Jr., formed Preservation Technologies, L.P. in 1992, with a central mission of meeting the deacidification needs of LC and other research libraries around the world.

By 1996, Preservation Technologies was consistently meeting LC's specifications in repeated testing and quickly surpassed their target completion rate of 75,000 volumes per year. As the company progressed, we developed special methods for treating loose manuscripts in addition to bound volumes. This allowed us to treat papers from a variety of important archival collections, including the YMCA Archive in Minnesota, the papers of Carl Sandberg at the University of Illinois, and other papers from ARL libraries across the country.

Since we began, we have successfully deacidified over 5 million volumes and 10 million manuscript pages. Although other processes have been developed in the last decade, Bookkeeper is still the only deacidification process in the world approved by the Library of Congress.

Preservation Technologies revolutionized the deacidification process. By applying engineering solutions, we improved the process and lowered the treatment cost-per-book by ninety-percent. Now, a treatment that used to cost hundreds of dollars and could only be performed by an experienced conservator one item at a time could now be achieved at scale for less than fifteen dollars per volume.

THE MEDIAPRESERVE

Given our well-known success with deacidification, our growing team of library professionals, and our ethos of applying engineering solutions to preservation problems, almost fifteen years ago we were approached and asked to consider the digitization of analog audiovisual materials.

The request prompted us to consider our position on the following questions:

- Do we preserve information in some form?
- Could we bring engineering principles to bear, so that we could improve efficiency and reduce cost, and solve a problem that involved a large quantity of materials?
- Was this a problem experienced in libraries and archives worldwide?

Once we were able to positively answer these questions, we formed The MediaPreserve in 2006. We applied the same approach we had used for paper conservation. We hired the best engineers in the world to envision and build solutions for affordable, high-quality mass digitization. Then we hired the best librarians, preservation experts, and metadata specialists to ensure that we adhere to the latest standards for preservation of all formats and supply the highest quality files, metadata, and customer service to our clients.

Our media business encompasses audio, video and film, and our clientele ranges from individuals to national libraries.

COPY

KEY PERSONNEL

Robert Strauss

Vice President, Strategic Planning

Prior to joining the staff of Preservation Technologies, Mr. Strauss worked as a consultant and preservation planner with museums, libraries, archives and government agencies. He is a founder and remains a principal in the Preservation Management Institute. Mr. Strauss served as Executive Director and President of The Conservation Center for Art and Historic Artifacts in Philadelphia; Vice President, LBS, in charge of the Archival Products Division in Des Moines, and as Administrator in the Department of Printing and Graphic Arts for the University of Minnesota. He began his career as a space planner for the Chester Fritz Library at The University of North Dakota.

Mr. Strauss is author/co-author of state preservation plans for Iowa and Ohio and has served as a consultant for the Pennsylvania planning effort. He has published and performed research on the history of the book, adhesives used for book manufacture and national/international standards for bookbinding. Mr. Strauss developed the first application of digital technologies to create facsimiles of printed text. He has managed these and other conservation projects for many cultural repositories throughout the United States.

Mr. Strauss has also lectured extensively on preservation management at professional meetings and university courses and has written numerous preservation plans for cultural institutions throughout the country.

Most recently Mr. Strauss has been charged with the development and management of The MediaPreserve, an audiovisual laboratory devoted to the conversion of motion picture film, grooved or magnetic audio formats and video tape from analog to digital files. The MediaPreserve is configured to produce archival masters, edit masters, streaming files and metadata to meet the needs of museums, libraries, archives and industry.

Dawn Aveline

Director of Preservation Programs

Dawn Aveline joined Preservation Technologies in January 2019, bringing with her 8 years of experience in library and archives preservation. Before pursuing her library preservation goals, Dawn managed business development and client relations for a boutique architectural design firm specializing in large-scale water features.

In 2010 she entered UCLA's Master of Library and Information Science program specializing in Archival Studies. She worked as a student assistant in the UCLA Library Preservation Program, until graduating in 2012 and joining the Library full-time as Associate Librarian/Preservation Specialist.

In 2013, Dawn was appointed Preservation Officer and Head of Preservation and Conservation for UCLA Library. She assumed responsibility for assembling and leading a team of highly-respected experts engaged in preservation support and advocacy for the University's collections. Services she and her team provided include conservation treatment for rare and circulating collections, re-housing, exhibition preparation, stabilization and digitization of print and audiovisual materials, bindery prep, emergency preparedness and response, and environmental monitoring.

During her tenure Dawn facilitated the department's relocation and implemented the expansion of the Audiovisual Studio, adding film scanning and grooved media transfers, an eightfold increase in compact cassette and micro-cassette capacity, and doubling the video transfer systems.

Matthew Ruzomberka

Director of Technology, The MediaPreserve

Matthew is a graduate of Penn Technical Institute where he acquired an Associate degree in Specialized Technology in Electronics. He has over 25 years of experience in maintaining broadcast and production systems. Matthew started as an assistant editor at Production Masters Inc. where he learned the business from the ground up. Then he moved to Synergistic Technologies and gained experience as a field and maintenance engineer. Afterward, Matthew moved to KDKA-TV as a Broadcast Engineer before moving abroad to England to be closer to his family.

There he worked for prestigious companies such as Calrec Audio Ltd. and ITV Productions as an Electronic Engineer. He earned a Certificate in Education while teaching Electronic Engineering at Burnley College and at the University of Central Lancashire. Matthew then moved his family back to the United States to take up a position as Service Manager for Texolve Digital Inc. to oversee prestigious clients such as the National Archives, Pittsburgh Steelers and Penn State University. Matthew has attended and gained various manufacturer certifications through the years as part of his continuous professional and is an active member of SMPTE.

Heath Condiotte

Production Manager, The MediaPreserve

Heath Condiotte is an alumnus of both Pennsylvania State University and Full Sail University and is a member of the Audio Engineering Society (AES), the Association for Recorded Sound Collections (ARSC), and the National Association of Broadcasters (NAB).

Prior to helping create The MediaPreserve, Heath worked in the broadcast world for NEP Supershooters, building and repairing remote broadcast trucks. During his stay at NEP, he worked on the trucks that deliver events such as Monday Night Football, the Oscars, The US Open, and the Masters Tournament to the viewing public. Working at NEP fostered a detailed understanding of complex state of the art video and audio systems in demanding broadcast environments.

During his career, Heath has personally transferred over 10,000 open reel tapes and has had experience working with all genres and formats of recorded sound. His clients include colleges and universities, libraries, major corporations, government agencies, record labels, recording artists and private collectors. With more than 15 years of experience working with vintage analog playback equipment, Heath has made a name for himself by transferring tapes others might deem unplayable.

Heath's passion for archival work and commitment to perfection in analog transfers has garnered him credits on various remastered albums including Joe Cocker, Melissa Etheridge and Bobby Brown. His meticulous maintenance schedule for the vintage machines in the studios of The MediaPreserve ensures that archival media will be accessible and playable into the future.

Trey Bunn

Head of Audio Engineering, The MediaPreserve

After working for several years in radio production in Georgia and South Carolina, Trey decided to leave the entertainment industry and pursue a career in libraries instead. It was while earning his graduate degree in Library and Information Science at the University of South Carolina that he learned of the preservation needs of sound recordings, prompting a desire to merge his previous career with his impending one.

Since then, Trey has worked in libraries, museums, and archives, handling a wide range of audiovisual materials. His duties have also included developing, maintaining, and operating digital audio and video workstations that integrate various obsolete playback devices to digitize old analog recordings, enabling their use by future

generations. Most recently, he served as Audiovisual Conservator at the Emory University Libraries in Atlanta, Georgia, to digitize and restore many different kinds of recordings, and also facilitating grants to outsource work to vendors.

Bringing this diverse background of experiences, Trey has joined The MediaPreserve in late 2018 as the new Head of Audio Engineering, leading a growing team of talented and capable individuals who will continue to expand the company's capabilities in digitizing and preserving audio recordings.

Tim Carranza

Head of Video Engineering, The MediaPreserve

Timothy brings over 30 years of experience in Film and Television Post Production to The Media Preserve, joining the team in late 2018.

Timothy joined Fotokem in the late 80's, where he gained experience in cleaning, Hot and Cold splicing, as well as Negative and Positive assembly of 35mm and 16mm film for Telecine transfer of dailies and home video. He later joined their Video Duplication department, where he became shift lead, gaining experience in Analog video formats as well as Digital Component and Composite formats.

In 1995, Timothy joined International Image/Sonic Foundry which ultimately became part of Deluxe Digital Media for the next 23 years. Starting off as a Shift Lead in their Dubbing Department, he was quickly promoted to their Special Projects Team. He also set up and lead the Image Plus Department for the remastering of 4x3 material to 16x9 wide screen broadcast for PAL Plus wide screen broadcasts. From here, Timothy was promoted to Manager of the Special Projects team. At this time, the industry was transitioning from SD to HD, so Timothy worked to train the employees to be experts in HD and applied the knowledge of 2:3 cadence correction and high-end standards conversions to HD. His team successfully upconverted and frame rate converted many shows from 60 and 50 field video to 23.98 and 24fps progressive. This work has garnered Timothy film credits for "Dogtown and Z-Boys," "Riding Giants," and Ron Howard's "The Beatles: Eight Days A Week."

Timothy was the Director of Video Tape Services before leaving Deluxe. As the director, he transitioned the department from Video Tape to Video Tape work, to File to Video Tape and File to File work by bringing care and expertise to this new work flow. This also involved using motion predictive standards conversions, frame rate conversions and de-interlacing. Through this, Timothy has worked on large video preservation projects for Warner Bros, Comic Con, NBC Sports and others.

Grant Fletcher

Senior Video Engineer, The MediaPreserve

Mr. Fletcher comes to The MediaPreserve with 33 years of experience in film and broadcast television. His career started in film as a camera assistant and editor before moving into broadcast television.

Over 17 years at a CBS affiliate he rose through every engineering and production position from Master Control Engineer to Production Manager. He then moved into the Broadcast Operations Manager position at WQED Multimedia, which is one of top PBS stations in the country. Following this position, Grant was a freelance Video Engineer and Director for WQED and Velocity Worldwide Media working on live local, national, and international high definition entertainment and corporate productions from facilities all over the United States.

Mr. Fletcher stepped away from live television production and into video preservation and migration as the senior video engineer/coordinator at Iron Mountain Digital Studios for the last 5 years. At IMDS he served clients including major record labels, television networks and corporations, performing on-demand transfer and preservation as well as mass migrations. In 33 years his career has spanned the history of videotape from the earliest analog to the current digital formats.

Diana Little

Head of Film Preservation, The MediaPreserve

Diana Little received her Bachelor's degree from Vassar College, where she studied 16mm filmmaking and video production as well as cinema history and theory, in 1998. Upon graduation, she was inducted into Phi Beta Kappa and received both general and Film Department honors. As a student in the 2003 class at the L. Jeffrey Selznick School of Film Preservation at George Eastman House, Diana became immersed in the world of film archiving and broadened her understanding of cinema through a familiarization with the history and nature of the physical properties of all types of film.

Prior to attending the Selznick School, Diana had completed a year-long internship in the optical printing department of Cineric, Inc., a photochemical and digital motion picture lab that specializes in preservation and restoration. After completing her studies, she returned to Cineric as Preservation Specialist and served in that role for seven years. In this capacity, Diana prepared preservation plans and directed workflow for individual projects and collections. Her duties were not strictly supervisory, however, and much of her time was spent inspecting and repairing archival film and operating a film recorder. Diana had the pleasure at Cineric of working with a wide range of clients that included Anthology Film Archives, Eye Film Institute Netherlands, Sony Pictures Entertainment, The Museum of Modern Art, and the International Olympic Committee. She either oversaw or contributed to the preservation of works by Andy Warhol, Leni Riefenstahl, Elia Kazan, and Maya Deren, among many others.

Diana has served as Head of Film Preservation at The MediaPreserve since 2010. She is responsible for overall operations of the Film Department, including equipment purchases and maintenance, development of preservation strategies, film preparation and cleaning, scanner calibration and operation, color correction, and quality control of master files. She performs much of the preservation work herself in addition to supervising film inspection and scanning technicians. The collections Diana has worked with at The MediaPreserve have been extremely diverse in both content and carrier. They have included such unusual formats as 9.5mm, 22mm and 35mm filmstrips, and spanned genres comprising home movies, propaganda, documentaries, scientific films, and works of art. She also had the recent opportunity to make high-resolution scans of a collection of delicate nitrate prints from the very beginning of the 20th century.

Diana is an active participant in the moving image archiving field. She is a 12-year member of AMIA and has compiled the AMIA Newsletter calendar of events since 2009. Other volunteer activities with AMIA have included a term as co-chair of the Small Gauge and Amateur Film Committee and participation in the scholarship selections and mentor breakfast. She has contributed to *The Moving Image* journal as a reviewer and provided editorial contributions to the Mellon Foundation/NFPF *Film Preservation Guide*. Diana has presented on film preservation and related topics for Columbia University, the George Eastman House, the Whitney Museum, Pittsburgh Filmmakers, and Women in Film and Television International. She served on the steering committee of The Women's Film Preservation Fund from 2003-2009 and continues to participate in their efforts as a technical consultant. Diana was also featured as an expert on an episode of the PBS program *The History Detectives* that focused on a fragment of early optical sound film.

David Cetra

Senior Film Engineer, The MediaPreserve

After graduating from the University of Pittsburgh with a bachelor's degree in film studies, David Cetra began his career in motion picture preservation and restoration in 1993 at WRS Film and Video Laboratory in Pittsburgh, Pennsylvania.

At WRS lab, David started as a film preparation technician working on the FOX Movietone Newsreel project. Films were identified, repaired, and assembled into reels to be transferred onto multiple videotape formats.

David was promoted into the color timing department at WRS Lab in 1995. As a film timer he was responsible for the grading of both color and black and white films using traditional photochemical techniques, as well as the cueing of 16mm and 35mm A-B roll negatives for contact printing.

In 1998, David moved to Los Angeles, California to continue working as a film timer for Cinetech. At Cinetech, he worked on both preservation and full restoration projects of theatrical motion pictures from the silent era up to the 1960s.

Over the years David became an integral part of Cinetech by taking a more active role on more of the technically challenging restoration projects. He has done restoration work for all the major Hollywood studios, the UCLA Film and Television Archive, The Film Foundation, the Academy of Motion Picture Arts and Sciences Archive, and the Museum of Modern Art.

During his tenure at Cinetech David expanded his knowledge base of photochemical motion picture timing and printing techniques to include gamma testing, push and pull processing, special printing techniques, color inject flashing techniques (to replicate silent era tinting and toning), and eventually would contribute highly in the development of Cinetech's digital black and white negative film recording process.

Some of the restoration projects that he is credited with include: *The Red Shoes*, *The Barefoot Contessa*, *On the Waterfront*, *Of Mice and Men*, *The Night of the Hunter*, *Paths of Glory*, *In the Heat of the Night*, *Intolerance*, *Suddenly Last Summer* and *Repulsion*.

In June of 2013, David returned to Pittsburgh and began work for The MediaPreserve as a film technician. He is responsible for the inspection, repair, and cleaning of all film material arriving at the facility prior to digital ingest via scanners. David has also been involved with visual quality control of digital master files, embedding of additional metadata into files, preparation of videotape for digitization, and digital editing and color correction.

Herb Stull

Director of Information Technology

Herb Stull has been working in the Information Technology field for more than 30 years and has expertise in all the major IT disciplines, including networking/communications infrastructure and security, application development, fibre channel and high-performance storage technology and analog to digital transfer technology. He designs the storage systems, computer workstations and workflows used at The MediaPreserve to perform the digital transfer of audio, film and video assets.

He developed the *MediaKeeper* application using Microsoft Visual Studio 2010 and Microsoft SQL Server as a tool to track incoming media assets, manage the workflow required to create the derivatives and associated files for delivery, and make sure that the originals are returned to their owners. *MediaKeeper* is designed to track your media and deliver the associated preservation information according to your specifications.

Madison Stubblefield

Quality Control Specialist, The MediaPreserve

Madison earned an MLIS degree with a specialization in Archives, Preservation, and Records Management at the University of Pittsburgh, and a BA in English and Linguistics from the University of Alabama at Birmingham. Prior to joining The MediaPreserve, Madison interned at the Archives Service Center and the Digital Research Library at the University of Pittsburgh. Prior to his internship, he worked as a digital video librarian and copy editor for a Seattle-based internet start-up. He also has experience digitizing, cataloging, and quality-checking thousands of hours of video assets at the Vanderbilt Television News Archive in Nashville, Tennessee. After serving over a year as a project coordinator and XML metadata specialist, Madison has transferred to Quality

Control, where he oversees the post-processing, including the transcoding process, the creation of the naming structure, and the building of deliverables.

Kelly Applegate

Metadata Specialist, The MediaPreserve

Kelly earned her MLIS degree and a certificate in Special Collections from the School of Information Sciences at the University of Illinois at Urbana-Champaign. During her program she completed practicums with both the University of Illinois Archives and the Spurlock Museum of World Cultures. She has published scholarly work with both libraryjournal.com and *Cataloging & Classification Quarterly*. Before joining The MediaPreserve, Kelly was a Metadata Assistant for the University of Illinois' institutional repository, IDEALS, and a Digital Collections Analysis Assistant for the Preservation Department of the main library.

Kallie Sheets

Preservation Program Specialist

Kallie has earned an MLIS degree from the University of Pittsburgh with a specialization in Archives, Preservation, and Records Management. She also holds a BA in History from Penn State where she was a Schreyers Honors Scholar and a member of Phi Alpha Theta, the National History Honors Society. Before joining The MediaPreserve, Kallie interned at the Archives Service Center of the University of Pittsburgh where she spent her time processing collections containing many material formats.

Christopher Mills

Preservation Program Specialist

Christopher holds a BA in History and Religious Studies from Westminster College, an MA in Social Sciences from the University of Chicago, as well as an MLIS degree from the University of Pittsburgh. Prior to working at the MediaPreserve, Christopher interned at the Archive of European Integration at the University of Pittsburgh, where he digitized and processed archival collections. He has also held positions at the Carnegie Museums of Art and Natural History as Outreach Coordinator and Educational Assistant.

V. APPENDICES

Appendix A: Questions and Answers GMU-1549-19



Purchasing Department

4400 University Drive, Mailstop 3C5 Fairfax, VA 22030

Phone: 703.993.2580 | Fax: 703.993.2589

<http://fiscal.gmu.edu/purchasing/>

QUESTIONS AND ANSWERS GMU-1549-19

Responses are in **RED**.

1. Vendor pricing is based on a length or running time of recorded content per asset. What is the average length (running time) per assets that should be assumed for the formats listed in the RFP spreadsheet: Audio Cassettes, VHS, ¾" U-matics, open reel video, open reel audio, micro cassette, Betamax, Betacam, Video8/Hi8, MiniDV, DV- CAM, DAT, MII?

ANSWER: This information is unknown at this time, and we are unable in the time given to provide estimates for the running time of each format. The projects that will be sent out will be in groups over the course of a few years – this will not all be done at one time.

The MediaPreserve understands that there are no estimated runtimes for the assets described in the RFP. We have provided pricing based on an average one-hour runtime per video or audio asset. Please refer to our pricing proposal on page 18.

2. For both 8mm and 16mm motion picture film, vendor pricing is based on a cost "per foot". How many total feet of 8mm? How many total feet of 16mm? If unknown, please provide an average length in linear feet per reel for both or the diameter in inches of the reel pack for estimation purposes.

ANSWER: The total feet count is unknown, but we can average (on the high side). There are 64 8mm reels. The average length of an 8mm reel of film is 25 feet. There are 278 16mm reels. The average length of a 16mm film reel is 400 feet.

The MediaPreserve has provided pricing based on the film lengths above at standard definition resolution. Please see page 18.

3. Does the 8mm and 16mm motion picture film need to be rehoused in archival cans? Should we provide a cost for this service?

ANSWER: Per the RFP, rehousal will only be needed if cans are damaged or missing. At this point, the bulk of materials are fine and do not need to be rehoused. However, since this is to be an ongoing contract, at some point we will need to have film rehoused.

The MediaPreserve understands that rehousal is to be done on an as needed basis, if cans are damaged or missing. We can provide rehousing for all types of media assets as requested/needed.

4. What is meant by "Disc Media" in the AV Formats spreadsheet? Are these audio discs, such as LPs, 78s, transcription discs or digital discs, such as CDs, DVDs, etc.? Please provide specific quantities and lengths if mixed.

ANSWER: The Disc Media category is only for standard phono-records (LPs - 33 1/3, 78s and 45s). We have the following breakdown of disc media:

▪ 12" 33 1/3	86
▪ 12" 78's	247
▪ 10" 78's	144
▪ 7" 45's	174

The MediaPreserve has the ability to digitize the grooved disc collection described above.

5. Under 'Statement of Needs' in the RFP, what are the specific resolution, codec, and container specs for Film, Video, and Audio assets?

ANSWER:

Film and Video:

Preservation master – 10-bit YUV uncompressed .mov, 720 x 486, 16-bit PCM 48KHz

Mezzanine copy – DV-25, 720 x 480, 12-bit PCM 32 KHz

Streaming copy - H264/MP4, 640x480 , 8-bit, 1,100 kbps, AAC; stereo 128 kbps 48 KHz

Audio:

Preservation master – 24-bit/96KHz Broadcast WAV

Mezzanine copy – 16-bit/44KHz Broadcast WAV

Streaming copy – MP3 , 44.1 kHz, 256 kbps

The MediaPreserve has provided these files to George Mason in the past and will be able to provide these same files for the project described in this RFP.

6. Is there a specific metadata or schema the vendor will need to follow? If so, can you provide an example? If not, is GMU open to recommendations?

ANSWER: In past reformatting jobs, vendor has supplied administrative metadata related to the capture. See next page for example.

It is standard practice for The MediaPreserve to supply our Standard XML Metadata for all files that are created. We will continue to do this for the project described in the RFP.

7. Under 'Statement of Needs' in the RFP, what type of "checksums" are required?

ANSWER: MD5 hash algorithm

It is standard practice for The MediaPreserve to supply MD5 Checksums for all files created. We will continue to do this for the Project described in the RFP. Please see the Quality Control section starting on page 59 for a description of our QC processes. MD5 checksums are generated whenever a file is moved to a new location.

8. Is it advantageous for the vendor to arrange pickup and return shipment of the assets or will GMU handle shipping to and from vendor's facilities? Will assets be boxed and palletized prior to shipment?

ANSWER: Vendor-arranged pickup and return shipment is preferred, with the understanding that this will be insured. The assets will be boxed. We do not anticipate the need to palletize the materials, as they will not all be done at one time.

The MediaPreserve maintains a dedicated logistics department that allows us to coordinate pickup and return shipments with George Mason University. All assets are insured with \$10 million in fine arts insurance from the moment they leave the University to the time they return.

9. What medium will "master", "mezzanine", and "access" files need to be delivered on (hard drive, LTO, etc.)? If hard drives, will GMU retain the drives after conclusion of the project?

ANSWER: All files will need to be delivered on a hard drive. GMU will not need to retain the drive after conclusion of the project.

The MediaPreserve provides all files on a returnable drive. These drives can also be purchased at cost if Mason chooses to keep it.

Answer #6 Example

See XML Standards provided in following Appendices.

COPY

Appendix B: Standard Moving Image XML Metadata

```
<?xml version="1.0" encoding="utf-8"?>
<MediaAsset>
  <Original>
    <Title>var0001</Title>
    <Markings>Children of apartheid with Walter Cronkite</Markings>
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    <FormatType>VHS</FormatType>
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    <ReelSize>60 min.</ReelSize>
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    <SourceDeckManufacturer>Panasonic</SourceDeckManufacturer>
    <SourceDeckModel>AG-1980P</SourceDeckModel>
    <SourceDeckSerialNumber>C0TC00547</SourceDeckSerialNumber>
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    <VideoCorrectionDeviceManufacturer>N/A</VideoCorrectionDeviceManufacturer>
    <VideoCorrectionDeviceModelName>N/A</VideoCorrectionDeviceModelName>
    <VideoCorrectionDeviceModelVersion>N/A</VideoCorrectionDeviceModelVersion>
    <VideoCorrectionDeviceModelSerialNumber>N/A</VideoCorrectionDeviceModelSerialNumber>
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    <DropOutActivity>Low</DropOutActivity>
    <VideoStandard>NTSC 525</VideoStandard>
    <RFLevel>Normal</RFLevel>
    <TimeCode>N/A</TimeCode>
    <AudioQuality>Good</AudioQuality>
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    <SoundFieldLevel2>Ch1, Ch2</SoundFieldLevel2>
    <NoiseReductionLevel1>No</NoiseReductionLevel1>
    <NoiseReductionLevel2>N/A</NoiseReductionLevel2>
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    <TransferComments>Audio is 2 channels mono. There are some dropouts in the video. Horizontal
      blanking is wide as recorded, black bar to the right of the picture.</TransferComments>
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    <OriginatorAddress>111 Thomson Park Drive, Cranberry Township, PA
      16066-6424</OriginatorAddress>
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    <FileSizeUnit>GB</FileSizeUnit>
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```

```

<VideoCaptureDeviceManufacturer>Digital Rapids</VideoCaptureDeviceManufacturer>
<VideoCaptureDeviceModelName>DRC-2200</VideoCaptureDeviceModelName>
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<VideoCaptureDeviceModelSerialNumber>0x5D2805130A0B0102</VideoCaptureDeviceModelSerialNumber>

  <VideoCaptureDeviceDriver>N/A</VideoCaptureDeviceDriver>
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  <EncodeSoftware>Stream</EncodeSoftware>
  <EncodeSoftwareVersion>3.7.3.32</EncodeSoftwareVersion>
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  <FrameSizeVertical>486</FrameSizeVertical>
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  <DataRate>224</DataRate>
  <DataRateUnit>Mbps</DataRateUnit>
  <VideoBitDepth>10</VideoBitDepth>
  <ScanType>Interlaced</ScanType>
  <AudioCodec>PCM</AudioCodec>
  <AudioSchema>Uncompressed</AudioSchema>
  <AudioBitDepth>24</AudioBitDepth>
  <AudioChannels>2</AudioChannels>
  <AudioSampleRate>48</AudioSampleRate>
  <AudioSampleRateUnit>KHz</AudioSampleRateUnit>
  <AudioBitRate>2304Kbps</AudioBitRate>
  <ComputerManufacturer>Dell</ComputerManufacturer>
  <HostComputerName>Precision</HostComputerName>
  <HostComputerVersion>T7500</HostComputerVersion>
  <HostComputerBuild>N/A</HostComputerBuild>
  <OperatingSystem>Windows 7</OperatingSystem>
  <OperatingSystemVersion>Professional</OperatingSystemVersion>
</PreservationMaster>
<Streaming>
  <Type>H264</Type>
  <FileName>var0001s.mp4</FileName>
  <FileSize>598.79</FileSize>
  <FileSizeUnit>MB</FileSizeUnit>
  <RunningTime>00:51:43</RunningTime>
  <DateCreated>8/3/2013 9:18:13 AM</DateCreated>
  <ChecksumValue>CA254F90106BCB46A822DFD9B9F44687</ChecksumValue>
  <ChecksumType>MD5</ChecksumType>
  <ChecksumDateCreated>8/3/2013 9:46:48 AM</ChecksumDateCreated>
  <EncodeSoftwareManufacturer>Digital Rapids</EncodeSoftwareManufacturer>
  <EncodeSoftware>Stream</EncodeSoftware>
  <EncodeSoftwareVersion>3.7.3.32</EncodeSoftwareVersion>
  <VideoCodec>Digital Rapids AVC for Web version 3.1.2</VideoCodec>
  <FileFormatWrapper>MP4</FileFormatWrapper>
  <ColorSampling>4:2:0</ColorSampling>
  <FrameSizeHorizontal>720</FrameSizeHorizontal>
  <FrameSizeVertical>540</FrameSizeVertical>
  <AspectRatio>4:3</AspectRatio>
  <FrameRate>29.97fps</FrameRate>

```

```

<FrameCount>15515</FrameCount>
<DataRate>1500</DataRate>
<DataRateUnit>Kbps</DataRateUnit>
<VideoBitDepth>8</VideoBitDepth>
<ScanType>Progressive</ScanType>
<AudioCodec>AAC(Low Complexity)</AudioCodec>
<AudioSchema>Compressed</AudioSchema>
<AudioBitDepth>16</AudioBitDepth>
<AudioChannels>2</AudioChannels>
<AudioSampleRate>44.1</AudioSampleRate>
<AudioSampleRateUnit>KHz</AudioSampleRateUnit>
<AudioBitRate>160Kbps</AudioBitRate>
<ComputerManufacturer>Dell</ComputerManufacturer>
<HostComputerName>Precision</HostComputerName>
<HostComputerVersion>T7500</HostComputerVersion>
<HostComputerBuild>N/A</HostComputerBuild>
<OperatingSystem>Windows 7</OperatingSystem>
<OperatingSystemVersion>Professional</OperatingSystemVersion>
</Streaming>
<MPEG2-DVD>
  <Type>MPEG2</Type>
  <FileName>var0001d.mp2</FileName>
  <FileSize>2.53</FileSize>
  <FileSizeUnit>GB</FileSizeUnit>
  <RunningTime>00:51:43</RunningTime>
  <DateCreated>8/3/2013 9:18:13 AM</DateCreated>
  <ChecksumValue>ACE15C096E89A644961CD9A4F9532D8A</ChecksumValue>
  <ChecksumType>MD5</ChecksumType>
  <ChecksumDateCreated>8/3/2013 9:47:30 AM</ChecksumDateCreated>
  <EncodeSoftwareManufacturer>Digital Rapids</EncodeSoftwareManufacturer>
  <EncodeSoftware>Stream</EncodeSoftware>
  <EncodeSoftwareVersion>3.7.3.32</EncodeSoftwareVersion>
  <VideoCodec>MainConcept - MPEG2</VideoCodec>
  <FileFormatWrapper>MP2</FileFormatWrapper>
  <ColorSampling>4:2:0</ColorSampling>
  <FrameSizeHorizontal>720</FrameSizeHorizontal>
  <FrameSizeVertical>480</FrameSizeVertical>
  <AspectRatio>4:3</AspectRatio>
  <FrameRate>29.97fps</FrameRate>
  <FrameCount>15515</FrameCount>
  <DataRate>8</DataRate>
  <DataRateUnit>Kbps</DataRateUnit>
  <VideoBitDepth>8</VideoBitDepth>
  <ScanType>Progressive</ScanType>
  <AudioCodec>MPEG-Layer2</AudioCodec>
  <AudioSchema>Compressed</AudioSchema>
  <AudioBitDepth>16</AudioBitDepth>
  <AudioChannels>2</AudioChannels>
  <AudioSampleRate>48</AudioSampleRate>
  <AudioSampleRateUnit>KHz</AudioSampleRateUnit>
  <AudioBitRate>192Kbps</AudioBitRate>
  <ComputerManufacturer>Dell</ComputerManufacturer>
  <HostComputerName>Precision</HostComputerName>
  <HostComputerVersion>T7500</HostComputerVersion>
  <HostComputerBuild>N/A</HostComputerBuild>
  <OperatingSystem>Windows 7</OperatingSystem>
  <OperatingSystemVersion>Professional</OperatingSystemVersion>
</MPEG2-DVD>
</MediaAsset>

```

Appendix C: Standard Audio XML Metadata

```
<?xml version="1.0" encoding="UTF-8"?>
<mediaasset xmlns:fits="http://hul.harvard.edu/ois/xml/ns/fits/fits_output"
  xmlns:xsi="http://www.w3.org/2001/xmlschema-instance" xmlns:aes="http://www.aes.org/audioobject"
  xmlns:tcf="http://www.aes.org/tcf">
  <original>
    <title>bxoh_78</title>
    <markings>cumberbach, william; burnett, r.; morrisania</markings>
    <runningtime>00:11:47</runningtime>
    <recorddate>november 27, 1982</recorddate>
    <formattype>cassette</formattype>
    <stockbrand>scotch</stockbrand>
    <tapemodel>avc</tapemodel>
    <soundfield>stereo</soundfield>
    <noisereduction>none</noisereduction>
    <transfercomments>b side blank.</transfercomments>
    <conditionreport/>
  </original>
  <preservationmaster>
    <mediakeeper>
      <customerfilename>bxoh_78_preservation.wav</customerfilename>
      <checksum>7cb776b9815cf88e17d15a309a1e6c37</checksum>
      <runningtime>00:11:47</runningtime>
      <bitpersample>24</bitpersample>
      <bitrate>4608000</bitrate>
      <samplerate>96000</samplerate>
      <soundfieldfromjhove>2</soundfieldfromjhove>
      <filesizeinbytes>407791258</filesizeinbytes>
      <filesizeinkb>398233.7</filesizeinkb>
      <filesizeinmb>388.9001</filesizeinmb>
      <filesizeingb>0.3798</filesizeingb>
      <facedesignation>a</facedesignation>
      <trackdesignation>00</trackdesignation>
      <regiondesignation>01</regiondesignation>
      <computermanufacturer>dell</computermanufacturer>
      <hostcomputername>precision</hostcomputername>
      <hostcomputerversion>t3500</hostcomputerversion>
      <operatingsystem>windows 7</operatingsystem>
      <operatingsystemversion>professional</operatingsystemversion>
      <a2d_devicetype>analog to digital converter</a2d_devicetype>
      <a2d_devicemanufacturer>antelope audio</a2d_devicemanufacturer>
      <a2d_devicemodelname>orion 32</a2d_devicemodelname>
      <a2d_devicemodelversion>n/a</a2d_devicemodelversion>
      <a2d_devicedriver>antelope audio</a2d_devicedriver>
      <a2d_devicedriverversion>424 mkiii</a2d_devicedriverversion>
      <deck_equipmentbarcode>emst1227</deck_equipmentbarcode>
      <deck_description>tascam 424 6</deck_description>
      <deck_brand>tascam</deck_brand>
      <deck_model>424 mkiii</deck_model>
      <deck_serialnumber>0290532</deck_serialnumber>
    </mediakeeper>
  </preservationmaster>
  <metadata>
    <waveformat>
      <fileformat>bwf bext only</fileformat>
      <waveformattag value="1">pcm</waveformattag>
      <channels>2</channels>
      <samplespersec>96000</samplespersec>
      <avgbytespersec>576000</avgbytespersec>
      <blockalign>6</blockalign>
    </waveformat>
  </metadata>
</mediaasset>
```

```

    <bitspersample>24</bitspersample>
  </waveformat>
  <bextdata>
    <description>unidentified college</description>
    <originator>the mediapreserve</originator>
    <originationdate>2014-05-15</originationdate>
    <originationtime>12:30:33</originationtime>
    <bwfversion>1</bwfversion>
  <umid>0x060a2b340101050101092013000000565449010c25ff4c9946b33a49ae9316</umid>
  <codinghistory>
    <line num="1">
      <codingalgorithm>analog</codingalgorithm>
      <mode>stereo</mode>
      <text>tascam 122 mkiii; analog cassette</text>
    </line>
    <line num="2">
      <codingalgorithm>pcm</codingalgorithm>
      <samplingfrequency>96000</samplingfrequency>
      <wordlength>24</wordlength>
      <mode>stereo</mode>
      <text>mytek; 8x192adda; a/d</text>
    </line>
    <line num="3">
      <codingalgorithm>pcm</codingalgorithm>
      <samplingfrequency>96000</samplingfrequency>
      <wordlength>24</wordlength>
      <mode>stereo</mode>
      <text>rme; aes32; dio</text>
    </line>
    <line num="4">
      <codingalgorithm>pcm</codingalgorithm>
      <samplingfrequency>96000</samplingfrequency>
      <wordlength>24</wordlength>
      <mode>stereo</mode>
      <text>analog observer</text>
    </line>
    <line num="5">
      <codingalgorithm>pcm</codingalgorithm>
      <samplingfrequency>96000</samplingfrequency>
      <wordlength>24</wordlength>
      <mode>stereo</mode>
      <text>rewrite fsc</text>
    </line>
  </codinghistory>
</bextdata>
<qualityreport>
  <basicdata>
    <archivenumber>bxoh_78_preservation</archivenumber>
    <duration>
      <time>00:11:47:96</time>
      <samples>67965058</samples>
    </duration>
  </basicdata>
  <qualityevents>
    <event num="1" pos="begin">
      <mode>a</mode>
      <priority>5</priority>
      <name>digitalzero</name>
      <bwfname>digitalzeroon</bwfname>
      <timecode format="time">00:00:00:00</timecode>
    </event>
  </qualityevents>
</qualityreport>

```

```

    <samplecount>000000000</samplecount>
    <status>undefined</status>
</event>
<event num="1" pos="end">
    <mode>a</mode>
    <priority>5</priority>
    <name>digitalzero</name>
    <bwfname>digitalzerooff</bwfname>
    <timecode format="time">00:00:03:00</timecode>
    <samplecount>0000288000</samplecount>
    <status>undefined</status>
</event>
<event num="2" pos="begin">
    <mode>a</mode>
    <priority>5</priority>
    <name>digitalzero</name>
    <bwfname>digitalzeroon</bwfname>
    <timecode format="time">00:11:37:96</timecode>
    <samplecount>0067005058</samplecount>
    <status>undefined</status>
</event>
<event num="2" pos="end">
    <mode>a</mode>
    <priority>5</priority>
    <name>digitalzero</name>
    <bwfname>digitalzerooff</bwfname>
    <timecode format="time">00:11:47:96</timecode>
    <samplecount>0067965058</samplecount>
    <status>undefined</status>
</event>
<event num="3" pos="begin">
    <mode>a</mode>
    <priority>0</priority>
    <accuracy>35</accuracy>
    <name>modulation</name>
    <bwfname>startmodulation</bwfname>
    <timecode format="time">00:00:10:51</timecode>
    <samplecount>0001009535</samplecount>
    <status>undefined</status>
</event>
<event num="3" pos="end">
    <mode>a</mode>
    <priority>0</priority>
    <accuracy>95</accuracy>
    <name>modulation</name>
    <bwfname>endmodulation</bwfname>
    <timecode format="time">00:11:38:26</timecode>
    <samplecount>0067033160</samplecount>
    <status>undefined</status>
</event>
<event num="4">
    <mode>a</mode>
    <priority>4</priority>
    <accuracy>95</accuracy>
    <channel>1</channel>
    <name>criticalstop</name>
    <bwfname>criticalstop</bwfname>
    <timecode format="time">00:11:37:96</timecode>
    <samplecount>0067004360</samplecount>
    <status>undefined</status>

```

```

</event>
<event num="5">
  <mode>a</mode>
  <priority>4</priority>
  <accuracy>95</accuracy>
  <channel>2</channel>
  <name>criticalstop</name>
  <bwfname>criticalstop</bwfname>
  <timecode format="time">00:11:37:96</timecode>
  <samplecount>0067004359</samplecount>
  <status>undefined</status>
</event>
</qualityevents>
<qualityparameter>
  <maxpeak>-8.30 -10.19</maxpeak>
  <meanlevel>-45.01 -36.04</meanlevel>
  <heightloss>0.00065 0.00066</heightloss>
  <correlation>0.38</correlation>
  <dynamic>59.28 54.32</dynamic>
  <clippedsamples>0 0</clippedsamples>
  <backgroundnoiselevel>67.58 64.51</backgroundnoiselevel>
  <bandwidth>818.71 3625.73</bandwidth>
  <azimuth>0.02180</azimuth>
  <balance>-8.97</balance>
  <dcoffset>-0.0 -0.0</dcoffset>
  <speech>97.2</speech>
  <stereo>100.0</stereo>
  <qualityfactor>0</qualityfactor>
  <filestatus>u</filestatus>
</qualityparameter>
<operatorcomment>transferred at themediapreserve --- transferred at
themediapreserve</operatorcomment>
</qualityreport>
</metadata>
<fits xmlns="http://hul.harvard.edu/ois/xml/ns/fits/fits_output"
xsi:schemaLocation="http://hul.harvard.edu/ois/xml/ns/fits/fits_output
http://hul.harvard.edu/ois/xml/xsd/fits/fits_output.xsd"
version="0.8" timestamp="5/24/14 7:39 am">
  <identification>
    <identity format="waveform audio" mimetype="audio/x-wave" toolname="fits"
toolversion="0.8">
      <tool toolname="ois audio information" toolversion="0.1"/>
      <tool toolname="exiftool" toolversion="9.13"/>
      <tool toolname="nlz metadata extractor" toolversion="3.4ga"/>
    </identity>
  </identification>
  <fileinfo>
    <size toolname="jhove" toolversion="1.5">407791258</size>
    <lastmodified toolname="exiftool" toolversion="9.13" status="single_result"
>2014:05:15 14:01:09-04:00</lastmodified>
    <filepath toolname="ois file information" toolversion="0.2" status="single_result"
>\bxoh_78\bxoh_78_preservation.wav</filepath>
    <filename toolname="ois file information" toolversion="0.2" status="single_result"
>bxoh_78_preservation.wav</filename>
    <md5checksum toolname="ois file information" toolversion="0.2"
status="single_result">7cb776b9815cf88e17d15a309a1e6c37</md5checksum>
    <fslastmodified toolname="ois file information" toolversion="0.2"
status="single_result">1400176869979</fslastmodified>
  </fileinfo>
</tooloutput>

```



```

<tool name="nlz metadata extractor" version="3.4ga">
  <wav xmlns="">
    <metadata>
      <filename>bxoh_78_preservation.wav</filename>
      <separator>\</separator>
      <parent>\bxoh_78</parent>
      <canonicalpath>\bxoh_78\bxoh_78_preservation.wav</canonicalpath>
      <absolutePath>\bxoh_78\bxoh_78_preservation.wav</absolutePath>
      <path>\bxoh_78\bxoh_78_preservation.wav</path>
      <file>true</file>
      <directory>>false</directory>
      <filelength>407791258</filelength>
      <hidden>>false</hidden>
      <absolute>true</absolute>
      <url>file:/f:/unid2014040201/bxoh_78/bxoh_78_preservation.wav</url>
      <uri>file:/f:/unid2014040201/bxoh_78/bxoh_78_preservation.wav</uri>
      <read>true</read>
      <write>true</write>
      <extension>wav</extension>
      <modified>2014-05-15 14:01:09</modified>
      <date>20140515</date>
      <datepattern>yyyymmdd</datepattern>
      <time>140109979</time>
      <timepattern>hhmmsssss</timepattern>
      <type>audio/wav</type>
      <pid>null</pid>
      <oid>null</oid>
      <fid>null</fid>
      <processor>unknown</processor>
    </metadata>
    <riff>
      <length>407791250</length>
      <subtype>wave</subtype>
    </riff>
    <wave>
      <type>fmt</type>
      <length>16</length>
      <format>1</format>
      <channels>2</channels>
      <samplespersec>96000</samplespersec>
      <averagebytespersec>576000</averagebytespersec>
      <nblockalign>6</nblockalign>
      <bitspersample>24</bitspersample>
    </wave>
    <data>
      <type>data</type>
      <length>407790348</length>
    </data>
    <bext>
      <type>bext</type>
      <length>858</length>
      <description>unidan college</description>
      <originator>the mediapreserve</originator>
      <originatorref>
      <originatordate>2014-05-15</originatordate>
      <originatordateformat>'yyyy-mm-dd'</originatordateformat>
      <originortime>12:30:33</originortime>
      <originortimeformat>'hh:mm:ss'</originortimeformat>
      <timereferencelow>0</timereferencelow>
      <timereferencehi>0</timereferencehi>
    </bext>
  </wav>
</tool>

```

```

        <version>1</version>
        <codinghistory>analog,m=stereo,t=tascam 122 mkiii; analog
        cassettea=pcm,f=96000,w=24,m=stereo,t=mytek; 8x192adda;
        a/da=pcm,f=96000,w=24,m=stereo,t=rme; aes32; dio</codinghistory>
    </bext>
</wav>
</tool>
</tooloutput>
</fits>
</preservationmaster>
<mezzanine>
    <mediakeeper>
        <customerfilename>bxoh_78_access.wav</customerfilename>
        <checksum>abac1b080bd5e73d89e2d40ef9dcc31</checksum>
        <runningtime>00:11:47</runningtime>
        <bitpersample>16</bitpersample>
        <bitrate>1411200</bitrate>
        <samplerate>44100</samplerate>
        <soundfieldfromjhove>2</soundfieldfromjhove>
        <filesizeinbytes>124886708</filesizeinbytes>
        <filesizeinkb>121959.7</filesizeinkb>
        <filesizeinmb>119.1012</filesizeinmb>
        <filesizeingb>0.1163</filesizeingb>
        <facedesignation>a</facedesignation>
        <trackdesignation>00</trackdesignation>
        <regiondesignation>01</regiondesignation>
        <computermanufacturer>dell</computermanufacturer>
        <hostcomputername>precision</hostcomputername>
        <hostcomputerversion>t3500</hostcomputerversion>
        <operatingsystem>windows 7</operatingsystem>
        <operatingsystemversion>professional</operatingsystemversion>
        <a2d_devicetype>analog to digital converter</a2d_devicetype>
        <a2d_devicemanufacturer>antelope audio</a2d_devicemanufacturer>
        <a2d_devicemodelname>orion 32</a2d_devicemodelname>
        <a2d_devicemodelversion>n/a</a2d_devicemodelversion>
        <a2d_devicedriver>antelope audio</a2d_devicedriver>
        <a2d_devicedriverversion>424 mkiii</a2d_devicedriverversion>
        <deck_equipmentbarcode>emst1227</deck_equipmentbarcode>
        <deck_description>tascam 424 6</deck_description>
        <deck_brand>tascam</deck_brand>
        <deck_model>424 mkiii</deck_model>
        <deck_serialnumber>0290532</deck_serialnumber>
    </mediakeeper>
    <fits xmlns="http://hul.harvard.edu/ois/xml/ns/fits/fits_output"
        xsi:schemalocation="http://hul.harvard.edu/ois/xml/ns/fits/fits_output
http://hul.harvard.edu/ois/xml/xsd/fits/fits_output.xsd"
        version="0.8" timestamp="5/24/14 7:38 am">
        <identification>
            <identity format="waveform audio" mimetype="audio/x-wave" toolname="fits"
                toolversion="0.8">
                <tool toolname="ois audio information" toolversion="0.1"/>
                <tool toolname="exiftool" toolversion="9.13"/>
                <tool toolname="nlz metadata extractor" toolversion="3.4ga"/>
            </identity>
        </identification>
        <fileinfo>
            <size toolname="jhove" toolversion="1.5">124886708</size>
            <lastmodified toolname="exiftool" toolversion="9.13" status="single_result"
                >2014:05:16 11:30:48-04:00</lastmodified>
            <filepath toolname="ois file information" toolversion="0.2" status="single_result"

```

```

>\bxoh_78\bxoh_78_access.wav</filepath>
<filename toolname="ois file information" toolversion="0.2" status="single_result"
>bxoh_78_access.wav</filename>
<md5checksum toolname="ois file information" toolversion="0.2"
status="single_result">abac1b080bd5e73d89e2d40ef9dcc31</md5checksum>
<fslastmodified toolname="ois file information" toolversion="0.2"
status="single_result">1400254248180</fslastmodified>
</fileinfo>
<tooloutput>
<tool name="nlz metadata extractor" version="3.4ga">
<wav xmlns="">
<metadata>
<filename>bxoh_78_access.wav</filename>
<separator>\</separator>
<parent>\bxoh_78</parent>
<canonicalpath>\bxoh_78\bxoh_78_access.wav</canonicalpath>
<absolutePath>\bxoh_78\bxoh_78_access.wav</absolutePath>
<path>\bxoh_78\bxoh_78_access.wav</path>
<file>true</file>
<directory>false</directory>
<filelength>124886708</filelength>
<hidden>false</hidden>
<absolute>true</absolute>
<url>file:/f:/unid2014040201/bxoh_78/bxoh_78_access.wav</url>
<uri>file:/f:/unid2014040201/bxoh_78/bxoh_78_access.wav</uri>
<read>true</read>
<write>true</write>
<extension>wav</extension>
<modified>2014-05-16 11:30:48</modified>
<date>20140516</date>
<datepattern>yyyymmdd</datepattern>
<time>113048180</time>
<timepattern>hhmmsssss</timepattern>
<type>audio/wav</type>
<pid>null</pid>
<oid>null</oid>
<fid>null</fid>
<processor>unknown</processor>
</metadata>
<riff>
<length>124886700</length>
<subtype>wave</subtype>
</riff>
<wave>
<type>fmt</type>
<length>16</length>
<format>1</format>
<channels>2</channels>
<samplespersec>44100</samplespersec>
<averagebytespersec>176400</averagebytespersec>
<nblockalign>4</nblockalign>
<bitspersample>16</bitspersample>
</wave>
<bext>
<type>bext</type>
<length>860</length>
<description>unidan college</description>
<originator>the mediapreserve</originator>
<originatorref/>
<originatordate>2014-05-15</originatordate>

```

```

<originatordateformat>'yyyy-mm-dd'</originatordateformat>
<originortime>12:30:33</originortime>
<originortimeformat>'hh:mm:ss'</originortimeformat>
<timereferencelow>0</timereferencelow>
<timereferencehi>0</timereferencehi>
<version>1</version>
<codinghistory>analog,m=stereo,t=tascam 122 mkiii; analog
cassettea=pcm,f=96000,w=24,m=stereo,t=mytek; 8x192adda;
a/da=pcm,f=96000,w=24,m=stereo,t=rme; aes32;
dioa=pcm,f=44100,w=16,m=stereo,t=steinberg;wavelab 7;crystal
resampler,apogee;uv22hr;dither</codinghistory>
</bext>
<data>
  <type>data</type>
  <length>124885796</length>
</data>
</wav>
</tool>
</tooloutput>
</fits>
</mezzanine>
<access>
  <mediakeeper>
    <customerfilename>bxoh_78_streaming.mp3</customerfilename>
    <checksum>b815afa0503302aa3e135f84f8fb0b35</checksum>
    <runningtime>00:11:49</runningtime>
    <bitpersample/>
    <bitrate>192000</bitrate>
    <samplerate>44100</samplerate>
    <soundfieldfromjhove>2</soundfieldfromjhove>
    <filesizeinbytes>16991921</filesizeinbytes>
    <filesizeinkb>16593.67</filesizeinkb>
    <filesizeinmb>16.2048</filesizeinmb>
    <filesizeingb>0.0158</filesizeingb>
    <facedesignation>a</facedesignation>
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    <regiondesignation>01</regiondesignation>
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COPY